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GLEANINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

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No. 18



EDITOR HUTCHINSON, wax from cappings is the hardest kind of wax, and the best kind for brood foundation if you don't wire frames.

"FLY-ESCAPES are needed on the windows of a dwelling as much as bee escapes are needed on the windows of a honey-house," says Editor Hutchinson. Bright idea; and he got it from that Kanuck, Jacob Alpaugh.

I'M VERY GLAD to know that the tables are turning with Bro. Doolittle, and that, instead of red clover being worthless as in past years, he has been getting the grand red-clover crop reported on page 712. What a testimonial that is for those yellow bees!

A RULE that I supposed without exception was that, if you found more than one egg in a queen-cell, you might be sure of laying workers. The other day I found two eggs in a queen-cell and a good laying queen present. "Bees do nothing invariably."

"DARK OLD COMBS give to honey a darker color. This is the experience of some—others say no. Why this difference of experience?"—*Bee-keepers' Review*. May there not be a difference as to careful observation? Will not the length of time the honey is in the comb also make a difference in color? Fill a black comb with water, and immediately throw it out, and the water will be clear. Let it soak for a number of days and it will be like ink.

CARBOLINEUM seems to be getting more popular in Germany as a substitute for oil-paint on hives. Editor Weippl, of *Illustrierte Monatsblätter*, says he has used it exclusively for years; prefers it to paint because cheaper, and because it does not close the pores of the wood so as to prevent ventilation; and in spite of its strong smell he has hived swarms in hives painted with it two hours previously, although it is better to let them dry two or three days. I wish I could get some of it to try. [Carbolineum—I can not find it in the dictionary, and do not remember to have

heard of it before. Does it go by some other name in this country? In any case, what are its main ingredients?—ED.]

F. B. SIMPSON, in *Review* and elsewhere, is looming up as a real light upon the subject of queen-rearing. Upon one point, however, it is hard to agree with him. If I understand him correctly, he says that length of tongue is of no value *per se*, only as it indicates the presence of other good qualities. Take two colonies exactly alike in industry, etc., differing only in tongue-length. Would not the greater length of tongue have a cash value *per se* on a crop of red clover? Possibly, however, I do not rightly understand him.

BEES transfer larvæ—p. 714. I don't know whether that's true or not, but I'd like some proof if the assertion is to stand. We do know that it is a very common thing for bees to start queen-cells that are never used; now, why might not queenless bees do that? [Bees transfer larvæ? I could not believe I had said any thing of the kind; but, sure enough, the type stands out clear and cold. What I had in mind, and should have said, was that bees transfer eggs, for I have seen them do this. Under stress of conditions they may do the other.—ED.]

IT IS REPORTED in *Elsasz Bienenzuechter* that bees were fed honey that came from cappings that had stood in a zinc enameled dish, and half the bees died. [This might be true; but in that event the quantity of honey was probably small compared with the amount of zinc exposed; but the Californians universally store their honey in galvanized (zinc covered) cans; but the cans hold anywhere from ten to twenty tons; and the amount of surface of zinc exposed to the honey is so small that, for all practical purposes, we might say that the amount of poison is infinitesimal, and not worth considering.—ED.]

"IN THE ARRANGEMENT of nuclei it is always desirable to have something by which young queens can discriminate between their own entrance and that of some other of the same general appearance." That's what the editor says, p. 714, and it's worth saying over again. It applies to hives as well as nuclei.

It is a great mistake to suppose that distance is the main thing. If there is some object by which the entrances can be located, there is less danger of mistake with the entrances two inches apart than with them at two yards apart if the hives are in a long straight row on a dead level, with no other object than the hives to locate the entrances.

WITH SAW KERFS on the under side of hive-covers, end-cleats will prevent warping, but will they prevent twisting? No matter how firmly a cleat holds at each end of the cover, it seems to me that would not prevent the cover twisting so that the end-cleats would not lie in the same plane. [Saw-kerfs would aggravate the difficulty rather than help it. I believe the best solution of the hive-cover problem will be two boards $\frac{3}{8}$ inch thick separated by a $\frac{3}{8}$ air-space. The twisting tendency of one board would be counteracted to a great extent by the other if the two sets of boards are properly nailed and cleated.—Ed.]

FORMERLY I supposed that the presence of queen-cells where there was no intention of swarming was a reliable sign that no queen was present. When I take a laying queen from a nucleus and give a ripe queen cell, the rule is that, a day or so later, I'll find the young queen present and a number of queen-cells, which latter may not be destroyed till they have young queens nearly ready to emerge. When I give a caged laying queen to a colony, the rule is that, a week later, the queen will be laying, and queen-cells will be present, although not allowed to proceed to maturity. Even the presence of cells and the absence of eggs is not proof positive that the queen is not there. Sometimes it will be more than a week before she begins laying. [This is true according to my experience. The presence of queen-cells, I think we may safely say, outside of the swarming impulse and superseding impulse, indicates the absence of a laying queen, especially if they are in all ages of growth. A ripe queen-cell might, however, be in a hive with a laying queen for a day or two after the queen has been introduced, and this would be the only other exception to the rule, I believe.—Ed.]

MR. EDITOR, I had it laid up for you on the question of size of colonies and of bees in normal colonies destroying eggs. I intended to weigh a strong colony, and then crow over you. As a punishment for my wicked designs, when the time came for strong colonies they were not on hand, because the weather was so dry that the bees had stopped breeding. I'm not subdued enough, however, to refrain from asking you why it is that we have such beautifully even combs full of brood all uniform in age if the workers have the ugly habit of lurching upon the eggs at irregular times. Why don't we always see some cells among the sealed brood still open? You will see that Bro. Doolittle makes no allowance for that sort of lurching in his figures on page 712. [When the honey-flow is on full blast, and conditions are normal, I do not suppose there is any "lurching" business going on. Over and over again have I observed that a frame

that had been full of eggs on one day would the next day have them half or two-thirds gone. This was after the honey-flow, and it may have been that supplies were very short in the hive. Just now my memory is not very clear on this point. I still believe as I have before said, that we can figure that not all the eggs that a queen will lay will produce workers, by a long way.—Ed.]



In speaking about movable apiaries, it seems that Russia is taking the lead in a striking way. The August *Century* gives a view of an immense floating barge anchored at a village, also birdseye view of the deck. The following, taken from *Public Opinion*, will further explain the matter besides prove interesting in other ways:

The Russian educators, in casting about for the best means of economically fulfilling their mission, decided to experiment with immense floating gardens hundreds of feet in length. These great barges, built wide enough to give a comfortable area for the laying-out of a garden, are launched with the breaking-up of the ice. As these floating agricultural-experiment stations drift slowly downstream to warmer climes, the seeds sprout, and grain grows and eventually ripens. On the deck of the great barge is an extensive building, the residence of the professors of agriculture who have the station in charge, and a smaller house for the crew. The size of these buildings, however, is dwarfed by the immensity of the barge. On its great broad deck, besides the vegetable and grain beds, are various working models of bee-hives; for the government is bending every energy to revive this industry, once famous in Russia, when honey mead was the national drink.

As the barge journeys with the current, it stops at every village. The church bell is rung, and the people gather from the fields to be led by the *starosta*, or mayor, to the floating farm. They are invited aboard, where the various plants are explained to them, while illustrated lectures are sometimes given on the advantages of diversified farming. The questions of the peasants are intelligently answered, and seed is often left with the most enterprising for planting. So far the barge experimental farms have proved the most efficient method of spreading the new knowledge of farming in Russia, for the country is one vast plain. The great rivers flowing southward through the rich agricultural prairies take their rise in the dense forests of central and northern Russia. Here the great barges are built late in the fall, the spring freshets are made to save the expense of launching, and when fall comes again the wood of the barges can be sold in the treeless southern country, where wood is dear, and thus made to pay the expenses of the trip downstream. In America we little realize the extensive use Russia makes of her waterways. In European Russia alone there are over sixty thousand miles of navigable waterways, or almost three times the mileage of navigable rivers in the United States.



AMERICAN BEE-KEEPER.

Mr. Hill kindly says:

The editor of GLEANINGS has taken a Western trip and in consequence thereof has become enthusiastic in regard to the great extent and diversity of all things apicultural in that quarter. His mental expansion is already evinced in his journal to a marked degree. The fact that he quotes Horace Greeley, in his admonition to young men, however, strongly suggests that he has not yet "done" the South.

GENERAL CORRESPONDENCE

THE SWARTHMORE SYSTEM OF QUEEN-REARING.

Arrangement of the Fertilizing-boxes for Mating Numerous Queens in Full Colony on a Single Stand; a Plan Particularly Adapted to Honey-producers, and Those who wish to Rear Queens for Their own Use.

BY SWARTHMORE.

Through the side boards and back end of an ordinary Dovetailed hive-body cut several pairs of holes to match the zinc covered holes in the fertilizing-boxes—six on each side and four in the back, or three on each side and two in the back, according to the size of your hive and the number of boxes you wish to attach. If you object to cutting your regular hives use any old half-depth super or extemporized hive-body. To bring the flight-holes as far apart as possible, have the upper ones up and the lower ones down. Queens take no notice of colors or odd forms. It is the little cluster of anxiously waiting young bees that attracts them. Thus an entrance arrangement that separates the clusters is desirable. Young queens will fly from three to four times in a day, returning each time with the evidence of having met a drone, often repeating the performance for two and sometimes three days. These are false contacts, and are easily removed by the bees. The true connection will show a fibrous substance much resembling strands of fine flax when dry. This the bees do not seem to remove, but it comes away with the first eggs discharged, which, by the way, are not deposited. A young queen will begin laying on the second day after becoming pregnant. Many of the first eggs are drone, and are rarely allowed to develop by the bees. But I digress.

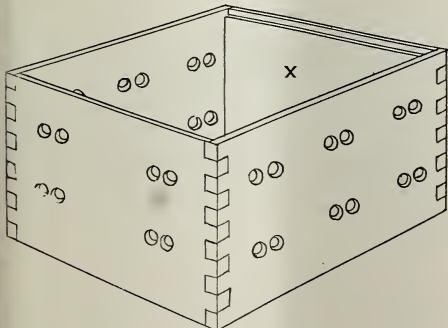


FIG. 1.

$\frac{3}{4}$ -inch holes bored through Dovetailed body, ready for attaching fertilizing-boxes outside.
X, front board, no holes.

Now adjust over each pair of holes a fertilizing-box. Hang the boxes on little wire hooks so they may be easily removed at any

time, or the back lids may be simply tacked to the hive. Have, a little to the sides of each box, small staples or screw-eyes to hold pieces of stout cord for tying the boxes firmly to the sides of the hive.

Those living in a climate where the nights are quite cool are advised to attach the boxes to the inside walls of the hive, and to bore single $\frac{3}{4}$ -inch flight-holes through the hive-body to correspond with the $\frac{1}{2}$ -inch flight-holes in the boxes. This practice is especially desirable in early spring or late autumn; also during long rainy spells. To separate the clusters, tack a plain $4\frac{1}{4} \times 4\frac{1}{4}$ section box about each flight-hole, on the outside walls of the hive.

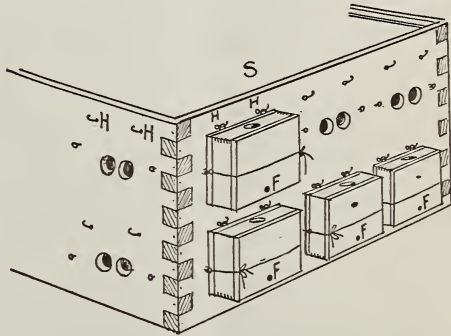


FIG. 2.

FERTILIZING-BOXES IN PLACE ON DOVETAILED HIVE BODY.

F, flight-hole; S, shell-cup queen-cell; H H, hooks to support box.

After you have supplied each fertilizing-box with one comb containing brood, mainly capped, as explained previously, attach one hatching cell to each comb (on the inside lid). A shell cup may be slipped in through a hole in the top-bar, as shown at S, Fig. 2, at any time, without the necessity of opening the boxes. Put the boxes all in place on the outside of the hive-body, and tie each one firmly. Fill the hive-body with combs containing honey, capped brood, etc. Bring the brood to the outside walls to attract young bees into the boxes. Unless the queen-cells are *ripe*, many may fail to hatch, on account of cool nights, dampness, or insufficient bees to cover them; therefore it is far better to run just-hatched virgin queens into each box. Cells hatched in cages, inside the main hive, obviate the necessity of any special or intricate introduction proceedings; for, having hatched in the midst of the bees, each queen is as much a part of the colony as the bees themselves. Bees will not deliberately destroy virgin or laying queens if they are held apart from one another in cages or fertilizing-boxes; but if a young laying queen is at large on the combs, every virgin will be balled by the bees at 24 to 48 hours of age. When the laying queen below is an old one, however, virgins will be allowed to live and mate, on the principle of supersedure.

The Swarthmore nursery cage is especially adapted to this system, as the bees can freely enter the cages through the zinc side, and can

become acquainted with each queen as she hatches. Place in cages, in the midst of the mating colony, as many fine cells as you have boxes attached; and as soon as the queens hatch, simply remove them from the cages and run one into each box. Either place the box attachments upon some queenless colony (above an excluder) that has just been used in forcing a batch of cells, or one that has been deprived of its queen three days prior. Place a guard at the grand entrance, to prevent stray queens from entering there.

After all the young queens are laying, run one into the lower chamber, and leave the others in the boxes until needed. They will do no harm if left in the fertilizing boxes for months. We keep them thus from May to November without guards of any kind.

To keep up the strength of the mating colony where no queen is run into the lower chamber, add full combs of brood inside the hive-body; but be sure that no brood given is young enough for royal appointment. When the time comes for removing the young queens for shipment, or use in the home yard, they may be taken *one* or *all* at a time; but no attempt to introduce other virgins should be made until all the laying queens have been removed from all the boxes three days.

To take away the queens, loosen the knot and remove one lid at a time, as previously directed. Northern breeders can keep extra queens for late autumn delivery way up to frost, by placing the boxes, queens, bees, and all inside an empty hive-body, directly on to the tops of the frames below. Leave ranges between the boxes so that the bees can cluster about and enter all of them. Fill the remainder of the hive-body with quilts tucked in nice and warm, then cover all with a good rain-proof-lid.

By tying hive-bodies and utilizing the top of the hives, as well as the sides and ends, provision can be made for mating forty queens at one time from one full colony.

By having cells of different ages, one to three days apart at hatching, a large number of boxes may be attached to a single hive; for by alternating the queens of different ages about in the boxes, no two coming close together are in flight on the same day; therefore the loss from possible mixing is slight. It is only a question of skill and a thorough knowledge of the habits of young queens, with a cunning planning of remote flight-holes, when any bee-keeper may successfully mate innumerable queens, all from one powerful colony, on a single stand.

[This scheme of fertilizing-boxes looks as it might work. I say *might*, because several have already written, stating that they do not believe that the Swarthmore one-comb fertilizing-boxes, as described on page 436, May 15, would work in the hands of the average person, particularly during the robbing season. The objection made is that, in small one-comb nuclei, four or five inches square, there are too few bees to secure good results. In the arrangement above, Mr. Swarthmore

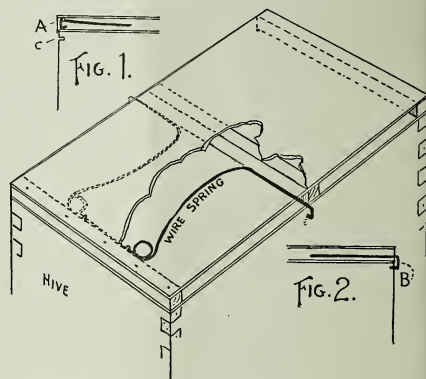
seems to overcome this objection, and now it remains to be seen whether others can secure the same result Mr. S. does. A little later on, I hope we ourselves may be able to speak from experience on both methods of having queens fertilized.—Ed.]

RAMBLE 191.

Some Inventions.

BY RAMBLER.

After your good sense has induced you to get a good hive, it is then necessary to have a good cover; and that is a rock upon which bee-men split. We have discussed the cover matter in GLEANINGS quite a little, and the subject is not exhausted. My pet cover is made of redwood sawed shakes, and double, as shown in the drawing. This cover will hold its shape in hot climates, and gives an air-space, which is necessary in hot locations. Paper can be used on this cover, and in the air-space, where it will be protected. I use cleats, making the air-space a full inch, and nail the middle cleat an inch from the center.

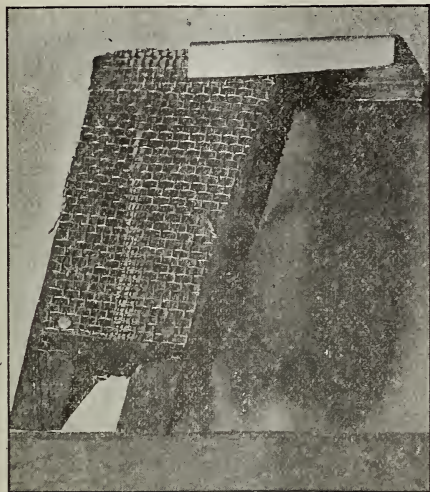


The reader of bee-lore has learned that in California, and especially in the southern part, several wagonloads of stones are distributed around on the hives in an apiary. A little improvement in my cover will enable the bee-keeper to dispense with the bothersome stones.

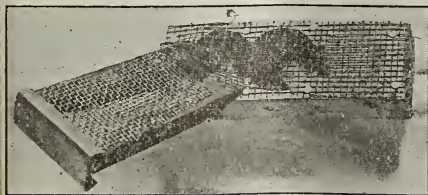
A stiff wire, $\frac{3}{8}$ in diameter, is bent as shown in dotted lines, and fastened inside the air-space. The hooked ends project only when in use, and then they grip strongly into the edge of the hive where a small hole is made to receive the points. The spring, or tension, of the wire causes it to grip. These grip so tightly that the whole hive can be lifted by the cover. When released from their grip on the hive the hooks retire into the air-space, entirely out of the way.

The editor saw one of these covers and fastener, and indorsed it. He might have been influenced that way by some of my flapjacks, for he had just eaten his fill of them under our fig-tree.

And now that we have exhausted the hive-and-cover matter, I will show you another device the editor indorsed. The half-tone will show you the nature of the device, without much description. It is for loading a queen-cage with queen and bees, and not touching a bee. The broad end of the cage has a sliding cover; the narrow end, a little tin gate or



slide. To operate, take the slide off the large end; and when you have found the queen, set that end down over her. As soon as she runs up into the cage, place the finger over the end, then slip on the tin slide, and you have her. Now place the beveled small end under the wire cloth on the shipping-cage; pull out the little gate, and the queen will immediately run into the cage. Now withdraw the catcher, and with the big end and your finger scoop up a lot of bees, and run them in, or as many as you need, and the work is done. It



QUEEN-CATCHER.

may be done as quickly by the plan of picking up one at a time; but this way is certainly safer for the queen.

As I walked by myself I said to myself, "John Rambler, you are a back number."

An echo from the editor under the fig-tree whispers, "Not in the line of flapjacks."

I found myself asking myself a queer question a few mornings ago. Said I to myself,

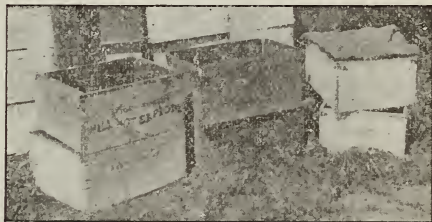
and myself said unto me, "Say, John Rambler, did you know you are getting to be a back number?"

"So ho, John Rambler, that may be; but there's lots of company on the same road."

"There is Doolittle. His queen-rearing was away up to date; but now Swarthmore leaves Doolittle away down cellar under the back kitchen. Yes, sir; Doolittle feels it, and is trying to catch up by whacking at long tongues. Can't do it; out of breath; knees stiff; under the fence."

"There's Dr. Miller, a back number, holding on to the T super like a tick to a sheep's back, out of date fourteen years ago, don't you know? Then the doctor keeps grinding away with that same old Straw-cutter; cogs slip; the feed-gear all out of whack; needs oiling. If you must run the old machine, do grease it up, doctor."

"Now I am getting right down to business, there is A. I. Root. You wouldn't think it, but he is a back number. He used to tell us how to make good serviceable hives out of good well-seasoned $\frac{3}{8}$ -inch lumber. Somebody shows him a hive made of $\frac{1}{2}$ -inch lumber; claps his hand on the fellow's back, and says, 'Yes, sir; that is a good thing.' Dear me! It worries me to think of it."



WEE-WAW HIVES.

Look on the accompanying picture. The first hive on the ground is a good $\frac{3}{8}$ -inch one—has seen much service, but it is still strong. The super upon it is made from a kerosene-case, $\frac{1}{2}$ -inch sides, and improperly labeled; for if the super itself does not explode, the fellow who handles it will use explosive language. After a few months' use it becomes what I term a wee-waw super, remarkably loose-jointed, and, when placed upon the top of the good square hive, see how much out of square it is—just the thing for a careless helper to use. He would leave half of the colonies in the apiary with center ventilation.

Anybody can readily see the season why it becomes "wee-waw." There is not enough thickness of lumber to hold the nails firmly. To be sure, it might be nailed often; but many nails weaken the holding parts, and it spreads at the corners as shown in the next hive. The only way to hold it in at the corners is with those corner-clamps used on fruit-boxes, and shown on the next two hives; but even these clamps do not prevent the wee-waw appearing in due time.

Well, let's see. Suppose we put them on with a lock corner or dovetail. That would certainly help matters; but still, there is that thinness of lumber; and unless the grain is straight there are little corners breaking out, splitting half way along the lower edge. Any way you can fix it, there is an everlasting bother in the use of a hive made with $\frac{1}{2}$ -inch sides.

Did you ever turn a wee-waw super up sideways and sit down on it? I saw a fellow do it the other day. The super collapsed, and the fellow went to the ground with his heels in the air. A good $\frac{3}{8}$ inch hive can be used for a seat or to stand on or to dance on. It is the only hive fit to use.

[Rambler's flapjacks are all right, and so are the other things he shows, except—except—well, the half-inch hives. I saw him at Rambler's, and if they wouldn't make a fellow "explode," I don't know what would.

Some of these old "back numbers" are all right, even if they do let a "cog slip" once in a while. The fact that some of their machinery has gotten out of gear a few times helps us young fellows in that we are careful not to use the same kind of gear. The mistakes of the veterans are often more helpful than their successes.—ED.]

THICK TOP-BARS, AGAIN.

A Thorough Examination of the Subject by Two of Our Best Authorities.

BY S. T. PETTIT.

Dr. Miller and the editor seem much excited over my article on top-bars, p. 227; also p. 380. In the footnote the editor says, "We first tried top bars that were wide and only $\frac{1}{4}$ in. thick. We had trouble from such bars sagging, and the building of burr and brace combs." I want to say, had those $\frac{1}{4}$ inch-thick and $1\frac{1}{8}$ -wide top-bars by some means been kept straight, they would have remained as clean as the cleanest the editor ever looked upon—yes, they would. I can not for the life of me understand how it can possibly be that the editor's experience shows him that brace-combs are more plentiful by the use of $\frac{5}{8}$ -thick than $\frac{3}{8}$ -thick top-bars. Is it possible that the length of the L. top-bar allows it to sag when only $\frac{3}{8}$ thick? But after all, respectfully, I wish to say I firmly believe the editor is all mistaken in that. My experience with $\frac{5}{8}$ -thick top-bars covering about 15 or 16 years is altogether different from his statement.

Dr. Miller (p. 380) says, "His strong point is that, by having $\frac{1}{4}$ inch more depth, the space of 1600 to 2000 cells is lost." Yes, that is my strong point; but there are other strong points. I will notice them further on.

No, I did not make the mistake of "counting that the same number of bees were occupied brooding those sticks as would be occupied in brooding $\frac{1}{4}$ -inch depth of comb." I neither thought it nor said it. This is what I did say: "The saving of that space in each

hive is a matter worthy our best consideration." Most certainly 1600 to 2000 cells in an average hive are of far more value than useless lumber, adding weight and unnecessary expense. I trust, with due consideration, the doctor will agree with me; but I must not forget that prejudice is an exacting, unrelenting tyrant. Then he proceeds to use up about half a column, and proves nothing, only that he "don't know" what he is talking about. His ferocious clip at an imaginary object hit nothing—it's all wasted energy.

Further on he says: "So if the prevention of burr-combs by deep top-bars be all a delusion—which I do not believe." Well, I presume I can show the reason why he does not believe it. He did not make thorough experiments to know for himself; but he came to his belief by—well, I guess I can not do better than to give the words of E. R. Root as follows: "Dr. Miller was greatly struck with the idea; and after some extended correspondence with the doctor we decided that we would launch forth for the ensuing year the new top bars." Then later they imagined that they evolved the new top-bar by revolving around each other by the coat-tail—a clear case of conviction not founded upon personal practical experience.

Below I quote from a letter sent me from the United States dated April 4, 1901: "I have read with much interest your article in GLEANINGS for March 15, and want to say that I indorse all you say in regard to *wide* and *thin* top-bars, and bottom-bars $\frac{3}{4}$ inch wide. For a number of years I have been using a top-bar $\frac{1}{4}$ inch thick and $1\frac{1}{8}$ wide, and *not* a *burr-comb* on a single frame in 8 years' use. A few days ago Mr. Cruikshank, near this town, called upon me, and, in alluding to this discussion, said he uses $\frac{3}{8}$ -inch thick top-bars, and has no bother with burr or brace combs." But the doctor says: "I still want the $\frac{3}{8}$ top-bars for the sake of having the sections so far from the brood-combs that the bees will not find it convenient to carry up a lot of black wax to spoil the snow-white sections." This statement reveals the fact that he has not yet learned all the valuable uses to which the queen-bar, or perforated metal queen-excluder, may be put. My practice is to get the sections just as close to the brood as I can, preserving all the necessary bee-spaces. To this end I want thin top-bars. Then to prevent the bees moving up dark wax, and to bar the drones with their filthy habits from the sections, to keep the queen in the brood-chamber, and to restrain pollen, I use a queen-bar, or an all-metal perforated zinc queen-excluder, which has a $\frac{1}{4}$ -inch-thick rim and two cross-pieces to keep it rigid.

This arrangement gives the same space between the top-bars and sections as the deep top-bars with all the extra advantages enumerated; but I would bring the sections closer to the brood if I could, and not dispense with the queen-bar.

On page 380 the editor says: "It seems to me that our friend Pettit assumes, or indirectly assumes, that those 1600 to 2000 cells are lost because of the brood that might have

been reared in them." Exactly so; and that is what hurts. Continuing he says: "But it is very seldom that brood is reared any closer than within an inch of the top-bar, with ordinary L. frames." Well, if that be so, then verily the management is faulty—yes, very bad indeed. Let me explain by giving my practice. I want practically all the brood-chamber for the queen. All stocks, weak and strong, are kept warm by keeping a warm cushion upon each; then, when the early flow sets in, to all strong stocks a super filled with comb is given, with that warm cushion on top, and a queen-bar to keep the queen down. Then the surplus honey will go into the super, and the brood and pollen will generally fill every last cell to the top-bars. Of course, there will be honey in the corners; and the thinner the top-bar the less the burr-combs and the more the brood. While the weather is cool a few cells along the top-bar, especially when the bees are not up to best condition, will contain unsealed honey and pollen; but as the heat increases, brood will come to the top-bars.

Twenty-five or twenty-six years ago I commenced to use a cushion on my hives; and when the comb or extracting-super goes on it goes up. It stays right on, or its equivalent, summer and winter. Mr. E. R. Root is just now finding out the benefits of a warm cushion, and so it will be with the thin top bars; but I hope it won't take him a quarter of a century.

Aylmer W., Ont.

[In order to enable the reader to make a better comparison of the points at issue, we deemed it best to have Dr. Miller's answer follow here instead of waiting till a later issue.—ED.]

In the matter of thick or thin top-bars, there are several different points to be considered, and it is of some consequence that we keep them separate. One question is: Does thickness of the top-bar *per se* have a direct bearing upon the matter of burr-combs between top-bars and sections? Quite another question is this: If thickness of top-bar has of itself no bearing upon the matter of burr-combs, is it practicable to use thin top-bars without getting into trouble otherwise? Still separate from these is the question: Is there any sufficient reason for thick top bars aside from the matter of burr combs? And again: If the same end can be reached by other means than thick top-bars, which plan on the whole is best?

As to the first question, I have said I don't believe that the prevention of burr-combs by deep top-bars is all a delusion. I have not said it is certain that deep top-bars are absolutely necessary to prevent burr-combs. I don't know. And knowing and believing are two quite different things. I'm afraid we don't know any thing on this subject as positively as we might. An experience of 16 years with top-bars $\frac{3}{8}$ thick makes friend Pettit think a greater thickness would be no better. Mr. Cruikshank says he has no trouble with burr or brace combs while using top-bars

$\frac{3}{8}$ thick. Editor Root says that actual trial gave more trouble with $\frac{3}{8}$ than $\frac{7}{8}$ of thickness. Mr. Pettit gives the remarkable testimony of a man who had "not a burr-comb on a single frame in eight years' use," and his top-bars were only $\frac{1}{4}$ inch thick! Amid this conflict of testimony, what is one to believe? One says a thickness of $\frac{3}{8}$ is necessary, and Mr. Pettit brings testimony that makes no greater thickness than $\frac{1}{4}$ inch necessary, while he finds reasons in his own experience to make $\frac{3}{8}$ necessary. Possibly a difference in hives, localities, or conditions may have something to do in the case.

Without pretending to have settled the first question, what about the second? Sufficient rigidity, in Mr. Pettit's case, required a $\frac{3}{8}$ in. top-bar, while $\frac{1}{4}$ gave sufficient rigidity in another case. The question arises in passing: If $\frac{1}{4}$ gives sufficient rigidity, why should Mr. Pettit need two and one half times that thickness? It is probable that there would be general agreement that no more than $\frac{3}{8}$ is needed to prevent sagging.

To the third question it has been answered that the thickness of top-bars tends toward whiteness of sections by increasing their distance from the black brood-combs; and to the closely connected fourth question it is answered that a queen-excluder will answer the same purpose. This, however, does not answer the question fully, for it still leaves unsettled whether the excluder or the thick top-bar is better. Right here is a good place to allow the manufacturer a word, and I may be allowed to quote from one, who says: "This is an exceedingly important matter; for if top-bars of brood-frames under proper conditions are just as good $\frac{3}{8}$ thick as $\frac{7}{8}$ we could make twice as many out of the same material which we now use in making such a large quantity each year. It would save a good deal of freight charges to customers, and the first cost and selling price could become lower. I presume it is a question on which there will always be a difference of opinion, but there ought to be strong grounds for continuing the $\frac{7}{8}$ top-bar if it is to be continued."

Most surely this should have due consideration. It is not, however, a question, in Mr. Pettit's mind, between $\frac{3}{8}$ and $\frac{7}{8}$, but between $\frac{3}{8}$ and $\frac{7}{8}$, with our present knowledge of top-bars. If the use of an excluder makes no greater thickness than $\frac{3}{8}$ necessary, is it right to oblige one to have a greater thickness if he would in any event use an excluder? The argument for whiteness of sections loses all its force with those who produce extracted honey. It also loses its force with such as Mr. Pettit, who would probably use an excluder anyhow. But there is a large number of comb-honey producers who feel no need of an excluder for other purposes, and the question is whether it will be cheaper for them to secure whiteness of sections by means of excluders or thicker top-bars. Mr. Pettit seems to think that, if I understood the full value of excluders, I would want to use them under sections. I value excluders, and have something more than a hundred on hand; but I would rather have them lie idle, as many of them do, than

to put them under sections. His reasons do not appeal to me, for the amount of pollen in my sections would not pay for the extra trouble of handling excluders if they cost nothing, and along with this goes the trouble of the queen going up, and my drones are not addicted to filthy habits in the super. So in my case, at least, if excluders could be had free I would decidedly prefer to secure whiteness of sections by means of thicker top-bars. The extra thickness costs a trifle compared with the expense of excluders, and the time taken to handle the excluders costs something.

Mr. Pettit is in error in supposing that Mr. Root and I imagined that by any process we had evolved thick top-bars. I don't know where the first evolving was done, but I suspect it was in the brain of that very practical countryman of Mr. Pettit's, J. B. Hall. Mr. Root speaks of getting the idea from him ten or twelve years ago; but my interest in thick top-bars antedates that by several years. In 1883, at the exposition at Toronto, J. B. Hall, in a neighborly way that I have never forgotten, showed me a hive containing thick top-bars, and told me why he used them of such thickness.

Mr. Pettit thinks prejudice has a strong hold upon me—a fact of which I am only too painfully conscious; but I try to be free from prejudice where my pocket is concerned, and as yet I do not see what I could gain by changing to thinner top-bars with the addition of excluders. It is only fair to say that in either case, and I have tried excluders on a somewhat large scale, and, indeed, in any case that I have tried, I am not as free from brace and burr combs as I should like. If Mr. Pettit finds it necessary for other reasons to use excluders, and if with $\frac{3}{8}$ top bars he is entirely free from trouble, then I have no quarrel with him for using no greater thickness than $\frac{3}{8}$. But I should advise those who are just beginning, before investing in a full outfit of excluders to determine whether Mr. Pettit's experience or mine would best fit them.

Marengo, Ill.

C. C. MILLER.

[I was not aware that either Dr. Miller or myself was "excited" over this thick-top-bar matter. Is it not possible that friend Pettit himself is a little bit on that order? When he talks about "ferocious flings," and intimates that both the doctor and myself are under the spell of prejudice, "an exacting and unrelenting tyrant," and our "revolving around each other by the coat-tail," one would think *his* equilibrium was a little bit disturbed. There is no occasion for excitement, for truth is what we want; but in the discussion of this question I fear we all lose sight of locality. After having gone through the great West, I am frank to acknowledge I have changed my views materially on some things; and I believe that, if our friend Pettit were to make a similar trip, he would be less positive than he now is. When one makes a strong statement he ought to limit it to his own locality.

Pine lumber behaves very differently in different parts of the United States. A top-bar that would not sag in one place might warp,

twist, and check very badly in another. Still again, we do not all use the same kind of lumber. In the South the yellow pine is used; in some parts of the middle West, whitewood; along the Pacific coast, Oregon pine, Oregon spruce, California redwood, and sugar pine are much used for top-bars, and all these timbers have peculiarities.

After all, as I understand it, Mr. Pettit, Dr. Miller, and myself are not very far apart in our views; and while I rather favor a top-bar $\frac{3}{8}$ thick, Mr. Pettit argues for $\frac{3}{4}$. As to the matter of width, I think there is no difference in opinion; therefore the only difference between us is in the thickness of the top-bar, and *that only $\frac{1}{4}$ inch*. I am willing to admit the $\frac{3}{8}$ bar gives very good results in some localities when some kinds of lumber are used; but the kind of bees, the kind of honey-flows, the depth of bee-space over the top-bars, are other factors that help to make a great variety of opinion. In discussions of this kind we should be broad enough and fair enough to believe that every man is telling the exact facts according to his locality, until we know what are the conditions of that locality.

As to the other points raised by Mr. Pettit, I can only refer to what I have already said on pages 227 and 380.

I do not wish to convey the impression that we of the Root Co. are wedded to $\frac{3}{8}$ inch, and can not change to $\frac{3}{4}$. Some conditions in the West, as I have observed them, may render it necessary to make a $\frac{3}{8}$ bar for those parts of the country. Rather than have two thicknesses and the resulting confusion, we may make for our Eastern trade a $\frac{3}{8}$ bar, even though we may have the feeling that there will be a slight increase in brace-combs.

There is one point to which Mr. Pettit refers, and that is that he succeeds in getting his brood built clear up to the top-bar in L. frames. If he can do that with pure Italians, without reversing, then he can do more than we can do with ours, even with cushions, and more than any one else I have ever met. We can accomplish the result with Syrian or Holy Land blood; but we prefer to have a little honey in the brood-nest rather than to have such bees in the yard.

There are very few producers of *comb honey* who use queen-bars or perforated zinc between the upper and lower stories. If a $\frac{3}{8}$ top-bar necessitates excluders and another bee-space, then it would be cheaper for bee-keepers to use the $\frac{3}{8}$ bar without the excluder. As a rule, excluders between the upper and lower stories are used in the production of *extracted* honey, and to only a limited extent have I noticed them being used in the production of *comb*.

To illustrate the difference in locality, I produce here a sample of some of the letters we have received. Here is a man, for example, who says a $\frac{3}{8}$ -thick top-bar is all right, but a $1\frac{1}{8}$ top-bar, advocated by friend Pettit, is "an abomination." Well, we will let Mr. Atwater, whom I met in Idaho recently, speak for himself.

Mr. Editor:—"The *frame's* the thing with which I'll catch the conscience of the

kings" (Root, Doolittle, Dr. Miller, and others). Here comes Pettit, in *American Bee Journal*, crying for a thin-top-bar frame, but advocating width as essential for the prevention of burr-combs. Mr. Pettit, I believe, speaks from the view-point of the comb-honey producer—at least I can scarcely tolerate the $1\frac{1}{2}$ -inch-wide top-bar in extracting-supers. A few firms are pushing a thin-top-bar Hoffman frame, "better and cheaper;" believe it not; they sag, not a little, but too much. I have had wired frames of this class sag fully $\frac{1}{2}$ inch when heavy with honey. The old-style molded top-bar frame about $\frac{3}{8}$ inch thick has never sagged, even when used as extracting-frames, answering perfectly for combs weighing as much as 7 to 10 lbs. In our yard we have in use hundreds of old-fashioned triangular top-bar L. frames, $\frac{7}{8}$ inch wide; and for extracting, and ease and rapidity of uncapping, they are away ahead of the modern (?) $1\frac{1}{2}$ -inch-wide top-bar abominations, and my combs are built out thick, as I use only 8 combs in most of the 10 frame extracting-supers.

Now Doolittle, in *Amer. Bee Journal*, tells us that he uses top-bars $\frac{1}{8} \times 1\frac{1}{8}$. If a top-bar of this thickness will not sag, it would be a little better than a thickness of $\frac{5}{8}$ inch or $\frac{7}{8}$ inch; but the width would make it any thing but a good frame for extracting. What, then, shall we have? My answer, dictated by somewhat limited experience, is that, for the producer of extracted-honey, a top-bar $\frac{7}{8}$ inch wide is the very best. The thickness must be sufficient to prevent sagging, perhaps $\frac{5}{8}$ inch. Let us hear from the veterans in the production of extracted honey, for dissatisfaction with the $1\frac{1}{2}$ inch top-bar is abroad in the land.

E. F. ATWATER.

Meridian, Idaho, Aug. 12.

[I would state for the benefit of Mr. Atwater, as well as for Mr. Pettit, there is a large number, in the West especially, of extracted-honey men who will not have a wide top-bar. They insist that their extracting-combs shall have narrow bars so they can uncup easily. If the combs bulge much, they not only uncup but cut off the bulges; and these bulges of wax, they contend, help to increase their profits, as they consider wax production an important part of the bee business.]

Another, who owns 500 colonies, Mr. W. L. Chambers, of Phoenix, Ariz., wants his top-bars *one inch thick*. Yes, it is perfectly true that we can not bring every one to our standard of measure. The fact of the matter is, the Root Co. makes several different styles of frames, and we supply for the Western trade narrow top-bar frames almost by the carload.

—ED.]

A RELAPSE OF BEE FEVER TO AN OLD VETERAN IN THE BUSINESS.

BY MRS. L. HARRISON.

Mr. Editor:—I've had a relapse of bee fever. It appears strange, since it has been so many years since I had such a severe attack, and it came on so suddenly too.

Last season I filled the second story of an L. hive with empty combs to protect them; and in the fall, when I prepared the bees for winter, I let this colony alone, excusing myself by saying we have such near neighbors if I stir them up by taking out those combs to extract them, some one may get stung, and run after the police. So I told the bees I didn't believe they had much honey any way, and that they were welcome to all they had.

This colony verified the truth of this saying, that bees build up stronger in spring when they have a full pantry. They knew that there was no danger of their children starving, and reared a large family. They soon became so strong as to hang out, and Mr. Harrison divided them, putting empty combs into the upper story.

One morning, while enjoying my rocking-chair in the shade of a catalpa-tree, I said to myself (I'm deaf, but she can always hear), "I'll not let that colony have all the honey they gather this year—so I'll not." I left my rocking-chair, and went into the honey-house. I tackled the extractor that had long remained idle, took out the gearing, washed and oiled it, and felt so good that I oiled the pump and clothes-wringer. Spiders had taken possession of the inside of the extractor, and I enjoyed slashing the water around; washed the tin bucket for carrying combs; sharpened the uncapping-knife, and scraped out the smoker, all the time my enthusiasm growing, and tingling in my finger tips. I felt youthful, and full of love to God and man.

I lighted my smoker, and paid my respects to the bees. They were civil, and treated me like a lady. I gave them a little smoke at the entrance, and then on top of their combs, and removed them to the honey-house. How delightful to uncup and put into the extractor, and see the honey running out into a jar covered with cheese-cloth! And now we have a nice jar of honey for our cakes another winter.

A friend told me lately that, during the blooming of his tulip-trees, there was a sound as if a swarm were among the branches. These trees are large forest-trees, and were transplanted many years ago from the Wabash Valley, of Indiana. It appears that they bear honey in this locality.

During the great heat and drouth, bees carried much water, and appeared to gather some honey. It may have been from the button-bush, as the Illinois River lowered. White clover is yet blooming in yards that are watered from city hydrants, and sweet clover has taken possession of all uncultivated land. Residents call it weeds, and call on the police to cut it down; but, like the children of Israel, the more it is persecuted the more it multiplies and grows. Bees work upon it much of the time.

I doubt if this locality will ever yield honey in the future as in the past. Paved streets and shingles yield no nectar. Lands that were overflowed and left uncultivated are becoming valuable and drained; where the plow and reaper go, there is small chance for bees. It appears to me that it would be for the good

of the country if bees were evenly distributed, many persons keeping a few colonies to fertilize fruits and clovers.

Peoria, Ill.

NOTES OF TRAVEL.

That Bee-keepers' Paradise in Texas.

BY E. R. ROOT.

When I left San Antonio, Texas, I took the train for Uvalde, about 80 miles west, on the Southern Pacific R. R. There seemed to be nothing particularly inviting in the country I went through, for the land seemed to be covered with desert-like shrubbery; when, therefore, Uvalde was called out by the train-man, I could not think what there could be in that apparently God-forsaken country to support bee-life to such an extent that carloads of bee-keepers' supplies should be poured into it and train-loads of honey go out.

Uvalde proper—that is, the town—is about $1\frac{1}{2}$ miles from the station; and as we got up into the suburbs of the village I began to see evidences of thrift and good homes. I went first to the hotel, and prepared to put up for the night. At the supper-table that evening I was surprised to hear talk about bees, hives, and honey prospects, just as one does here hear talk about grain crops in a farming community. As no one knew of my coming unless he consulted the register (and probably would not know me any way), I was an interested and a silent listener. Sometimes the talk changed to cattle-raising; then it would veer over to bees, honey, and hives. Said the owner of a weather-beaten face, with scraggly beard all over it, hair somewhat disheveled, a typical Westerner, with brawny hands, and big cowhide boots, "Wall, I reckon I can make my own hives—don't cost so much. Then you know I am a jack at all trades. Yes, I am quite handy in the use of tools."

Some one across the table ventured to remark that he preferred "factory goods," as they are made better.

"Mine are good enough for me, and I will put them aside of any of your Rute goods or Lewis goods, or any of your highfalutin' stuff."

And then, as if to qualify what he had said, he continued:

"Rute goods are all right, only I just won't pay his prices—freight is high, you know; and then I guess Rute likes to make a little too much off'm us fellows. No, I can make my own goods, and save Rute's big profits; but I'll allow Rute goods are good goods."

At this juncture I could not restrain myself any longer, and, turning to him, I said:

"I am very glad to hear you make that last remark, for my name is Root."

His eyes swelled under those shaggy overhanging eyebrows, and finally, recovering himself, said:

"What! you Rute? Wall, now! Say, stranger, I did not mean to run down your goods, for they are all right; but you know a

fellow can't afford to pay freight. You a'n't to blame for that. The S. P. road robs us."

"Certainly, my friend; you spoke highly of our stuff, and that is why I spoke."

But he seemed to feel that he had given me offense; and if he apologized once he did it half a dozen times while the rest of the men at the table were having a good laugh at his expense. I assured him his logic was all right, and that I had no doubt he could make just as good goods, and save money; and that if I were situated as he was, and could do accurate work, I would do just as he was doing.

After supper I sat out on the veranda, and heard bee and cattle talk intermingled. I was still an interested listener—the more so, as I knew that only a small number had heard the conversation at the table. I finally went to my room, which was just adjoining the veranda, and when the men thought I was out of hearing I could hear them laughing at the expense of our old friend—I can not remember his name—and the "slick way" he had "punched the ribs" of one of the Roots.

Knowing that D. M. Edwards was the "great bee-king" of the whole county, and of this fact I obtained evidence afterward, I sought out that gentleman the following morning. Everybody knew him, and I was told to go down to such a street, turn to the left, go so many squares, then go down another street—well, in trying to carry out my instructions I got all mixed up; so I turned to a man who was working in a back yard of one of the homes. I asked him if he could tell me where Mr. Edwards lived.

"No sabe."

Not catching the reply, I looked into his swarthy face, surmounted by a great peaked hat. I repeated my question, thinking I had been misunderstood. Back came the same lingo. I kept saying it over to myself, not knowing what it meant. After a little more wandering I found Mr. Edwards within a stone's throw of the "greaser" with whom I had been talking, and who persisted in hurling at me his "no sabe." Mr. Edwards was busily occupied in the rear of his pretty home when I called. I found him to be a man of pleasing address, and, after I had introduced myself, I related to him my experience with the aforesaid greaser.

"What! that man over there?" pointing.

"Yes," I said.

"Why, he knew perfectly well what you asked, but, like half the Mexicans, rather than give you a civil answer he fired at you the usual 'no sabe,' meaning 'don't understand,' when he did. But if you owed him some money, you would find he could 'sabe' with the rest of us."

All through my western trip, even extending into California, I found it was almost impossible to get a direct answer from many of the Mexicans or greasers. I had the words *no sabe* (no sobby) fired at me so many times that my impression of the average half-breed is that of a man who is suspicious of the Anglo-Saxon, and who prefers to hide under the cover of "no sabe" rather than to extend an accommodation.

Lest I may give offense to some very worthy and excellent Spaniards and Mexicans I met, I would say I do not mean to include them in the term "greaser" and "no sabe" people. Well, to return:

I pulled out my largest camera and took a picture of Mr. Edwards, and here reproduce it the size I took it. He is indeed the bee-

assistance or start; for when one expects to go into the bee business, about the first thing he is told to do is to go and see Edwards; and Mr. Edwards is one of those broad-hearted, kindly-faced men who will give his neighbor intelligent and satisfactory answers to his questions even though that information may be the means of bringing on to his territory a



D. M. EDWARDS, ONE OF THE PIONEERS OF UVALDE BEE PARADISE.

king of the whole county—one of the pioneers. He handles bee-keepers' supplies, and is one of that kind of men who can stand up and answer questions by the hour. As nearly as I can learn of some of his friends, nearly every bee-man in the county has either come in contact with him or received some sort of

bee keeper who will come in and divide the profits of his bee-range; and right in this connection I would say that one of the bee-paradises—this one in Uvalde Co., is pretty well overstocked with bees now. I do not think there is a single spot in the whole county that does not have all the bees it can possibly sup-

port, and more too. When I referred to a bee-paradise in an editorial, recently, I not only included Uvalde Co. but some of the adjoining ones, and some in New Mexico; and hence when I wrote on the train, riding as I was through New Mexico, that there were not enough bees to gather all the honey, I did not have in mind Uvalde Co., which I knew perfectly well was fearfully overstocked. But Mr. Geo. F. Robbins, who has been in the vicinity, got the impression that I referred to that alone, and enters, and justly so, a vigorous protest against the sentence as it stands. As he has some other things in this connection, I publish this letter just as he gives it.

I am prompted to write these lines much from personal desire, but partly by Huber Root, with whom I had some talks at Buffalo. The cause is some statements made by Ernest, in June 15th GLEANINGS, pp. 520 and 523. I assume that the notes pertaining to the bee-keepers' paradise and to Uvalde County both refer to the latter region. I agree with him that this is a wonderful honey country. I don't think any other tract in the world, 40 miles square, will support so many bees and bee-keepers, and send out so much honey. In June, 1900, I was told at the station that they were then shipping nearly 5000 lbs. of honey per day. That was no small thing, even for a station that is the shipping-point for a radius of 25 miles in every direction except east. I can go with Ernest nearly all the way; but when he says "there are not bees enough to gather the honey," I halt. Against such teaching I, as one who lives in one of the best tracts of this land of bees and honey, must enter an earnest protest. I say it is overstocked; and I think I can safely challenge you to consult the bee-keepers of Uvalde Co. and see if the majority of them do not sustain me.

Last fall a bee-keeper near Uvalde asked me what I would take for a location we have in Nueces Co., some 20 miles northwest, saying he wanted to put an apiary there, but didn't want to intrude on others' territory. I told him I would rather he would keep out. He did, and distributed some bees he had bought among his three apiaries, I suppose because he couldn't do any better. I firmly believe the small crop of himself and his neighbors this year is largely due to the crowded condition of his range.

Last spring I tried to rent a certain location of a cattle-man. I could not get it, but he offered me a less desirable one for \$50.00 per year. He thought he could get that, for six or eight men had tried to rent bee locations of him that winter (I don't think he rented it). I could give several other instances to show that there is a perpetual scramble for bee territory.

Some five years ago Mr. Edwards told Mr. Flanagan that all the good available locations were even then taken up. I know of quite a number of apiaries that have been crowded in since then.

I want to refer to two other statements in the notes before referred to. You say, "The average is high, and there is a crop every season." There was a period some years ago when that seemed to be the case. That is what started so many in the business. But, taking the last five years as a basis, not many bee-keepers here would say that. A case of 120 lbs. is, I believe, generally considered a good crop. This means "chunk" or comb honey in cans, about 25 to 33 per cent of which, in fact, is extracted. There is often considerable variation in tracts a few miles apart. This year, for example, on the upper Nueces, from a point about 12 miles from Uvalde, the crop has been much better than in any other part of the county so far as I have heard. Taking the county at large there has been little if any over half a crop gathered in the last five years, while in 1899 failure was almost general and complete.

The third statement I question is that to the effect that a honey-flow will stop swarming. I do not directly dispute it, but I do say the broad assertion that bees will, at the advent of the surplus season, destroy cells, kill off drones, and settle down to honey-storing, needs qualification. It doesn't always prove true. As Hutchinson says in a late number of the *Review*, the idea that a copious honey-flow has a tendency to check swarming is not particularly new. Doolittle said something to that effect some years ago. These conditions for some weeks preceding the surplus season are just such as to promote swarming, and I can

readily believe that a very rapid ingathering of honey may have the effect claimed for it. I know it has not happened since I have been here, but I think, from what old bee-men here say, I have not seen one of their old-time overflows from guajilla. The season of 1900 was noted here for excessive swarming, and I greatly hoped that the surplus flow would stop it as I had been told it would. You can see I was much disappointed when my bees, working in sections, some of which I had divided some time before started on a round of swarming. This year there was but little swarming, but I had almost as much of it during the early half of the season as I had before that time. One bee-keeper I know had swarming all through the season. I say, then, that, while I am not prepared to dispute the doctrine, I question, and am predisposed to accept it. I have never seen such a thing happen, and am certain such teaching can not always be relied upon.

GEO. F. ROBBINS.

Uvalde, Tex.

I have already answered that point in regard to overstocking Uvalde Co. While I see that the sentence in question on page 520 might be construed, and naturally, as applying to Uvalde Co., yet, riding as I was through New Mexico, and seeing just the kind of honey-plants and honey-trees that made Uvalde Co. a veritable paradise, in the other counties where there were no bees, I wrote the sentence having in mind the counties through which I was going. With this explanation I hope our friends in Uvalde will not feel that I was trying to flood their bee-ranges with more bees when they already have more than they can use to advantage.

With regard to the swarming before the honey flow, and its stopping afterward, I can only say that Mr. Edwards has been one of the pioneer bee-keepers of the county, and I believe he is more familiar with average conditions as they prevail than any other man in it. Mr. Udo Toepferwein, of Leon Springs, Tex., and Mr. G. F. Davidson, of Fairview, Texas, who I have just seen at Buffalo, both support the statement of Mr. Edwards; and they seemed surprised that any one should question it. Of course, they may not do this *every* season; but they said I might state positively that, in the beginning of a *heavy* honey-flow, swarming not only ceased, but that there would be a killing-off of the drones and a destruction of the cells; at least this was true of their respective localities.

My remark, however, to the effect that bees stop swarming, and destroy cells, etc., on the approach of the main honey-flow, was, perhaps, too general; but I intended to speak of the average conditions as I understood them from Mr. Edwards. At all events, I found that it is a peculiarity of the bees of the West that, on the approach of the main honey-flow, swarming either diminishes to a very appreciable extent or stops altogether. This is particularly so in Maricopa Co., Arizona, which I visited, and to a very great extent it is true of the southern counties of California, as well as of a few of the north-central. I also ran across the same peculiarity in the western part of Colorado. I have known, of course, that a heavy honey-flow has a tendency to check swarming even in the East, but not to such a marked degree as in the West.

In our next issue I will tell something about the honey-plants and some of the peculiarities

of soil and climate of Uvalde Co. At that time I will give pictures of some of the celebrated honey-plants which, without irrigation, and on lands that are too dry to grow any thing else, yield such immense quantities of fine beautiful honey. These will show why some of the western counties of Texas are veritable bee paradises.



IS IT A CASE OF LOCALITY?

"Here I am from 'over the border' to have a little talk with you in regard to a part of what you told Mr. Brown in July 15th GLEANINGS, page 596, near the bottom of the second column. There you tell how you take combs of brood, together with the queen and one frame of bees from a nucleus, and, by setting the same on the stand of a populous colony which has not swarmed, make a colony ready to go into the sections in a few days, from this brood, frame of bees, and the queen, together with the returning field bees from the moved colony. Is this right?"

"That is the way I intended"

"How many colonies did you ever make that way?"

"I do not think I can tell the exact number, but probably 150 to 200, as I used the plan quite largely each year (during the week before the blooming of basswood) before I went into queen-rearing, and have used it several times since then."

"But are not the bees disconcerted by this mode of treatment?"

"Yes, to a considerable extent for an hour or so, but soon become accustomed to the changed state of affairs, very much as they do when a weaker colony is exchanged with a stronger, so that both may be benefited by the exchange. Those who have practiced strengthening weak colonies in this way know that there is considerable commotion in front of the hive for an hour or so, caused by the bees coming out of the hive and returning several times to see if they have not made a mistake as to entering the wrong hive. But after a little they make up their minds, apparently, that it is all right, and soon go to work the same as if no exchange of hives had been made."

"But don't you find that the returning bees from the moved colony kill all or nearly all of the bees you took from the nucleus?"

"No, I have never been troubled in that way, nor did I suppose others had been. Do you have bees killed when working that way?"

"Yes, they always kill the majority of the bees I put in the hive in this way."

"Well, this is news to me. We have been told for nearly half a century that laden bees, returning from the fields, will not quarrel with any thing, and I have always so found it. I

am well aware that where you undertake to run a swarm into a colony, either large or small, where no precautions are taken, that there will be a terrible slaughter of bees; but I never had such an experience where the bees returned singly, or individually, as it were, and especially where each bee is laden with provisions which it has collected from the fields. Which party is it that does the killing, in your opinion?"

"I calculate, as I hinted at in my last reply, that the bees from the removed colony kill the majority of those set in the hive from the nucleus."

"If you have bees killed in this way, and I do not dispute your word, it is something entirely new to me; for in all cases of quarrelling which have come under my observation (and I have had scores of such cases), it has always been the bees inside of the hive, or those composing the colony, which have caught, stung, and killed those trying to enter—not those entering killing those inside. In one instance a little colony of less than a quart of bees killed a large swarm which I tried to run into it, and I knew which did the killing from the little colony being composed of Italian bees, while the swarm was composed of black bees. After the struggle was over, the ground in front of the hive was two or three inches deep with dead black bees, with scarcely a dead Italian bee to be found."

"But they not only kill the bees, but (with me) the queen as well; or, if she is not killed, she 'takes to her heels and is gone.'"

"This is fully as strange as the bees being killed. When I first tried the plan I was afraid they would kill the queen; and so I caged her for a few days, when she was released; but I finally became more bold, working on the plan 'that with a general mixing of bees the queen is safe,' and never lost a queen except in one or two instances, which I could account for in some other way. I really do not know how to account for our different experiences unless 'locality' will so account. It is possible that, if the plan was tried at a time when robbers were plentiful there would be a general fight, and then the queen would probably be killed; but no one should attempt the multiplication of colonies at a time when nothing was coming in from the fields, for at such times the bees do not undertake such a thing themselves."

"I had not thought of locality making a difference. Perhaps it would, but I doubt it. Then you say colonies made as you advise are 'ready to go into the sections in a very few days.' I never, in one instance, have succeeded in getting one pound of section honey that way; for without a laying queen bees will not make section honey, or at most but very little."

"Of course, if in your locality the bees and queen are killed, the plan is not one which you should adopt, nor do I advise any to adopt any new plan, only on the most limited scale, till they have proven it will work with them; and I here and now caution you to go slow on all plans which you have never tried, especially so on a plan which is under dispute. And the caution which I would give you, I would

give to all had I their ears at this time so I could tell them. But it would not be in accord with the knowledge of such men as P. H. Elwood, Capt. Hetherington, and other practical bee-keepers of Eastern New York, to say that no section honey, or very little at most, could be secured by colonies not having laying queens, for these parties have secured tons and carloads of comb honey in just that way—that is, by having the honey stored in sections while the colonies have no laying queen. I do not recommend such a plan, for with me better success is obtained where the colonies have laying queens; but I know these gentlemen have eminent success in their locality in this way. But I have a batch of queen-cells from which the queens are just ready to emerge, and I must attend to them. But before going allow me to suggest that you try making *just one colony* by the plan given, an hour or so before sundown, next year, and see if it will not work, even in your locality. By so doing not nearly so great a force of the field bees from the old or removed colony would be thrown with the combs of brood and queen on the first day.



TOO MUCH BROOD IN AUGUST; WHAT TO DO.

I wish you would tell me what to do with my bees. They are getting just enough to make them rear brood. The frames are crowded full, and no place for the honey, if there were a surplus. I am afraid they won't get enough for winter; if I could take the queens away for a week they would fill the hives; but it is a lot of work. I never saw so many bees raised before at this time of year. If you can suggest a remedy I wish you would, for I am "stumped." JAS. HILBERT.

Bingham, Mich., Aug. 28.

[I would not stop the queens' laying if I could as well as not. Let them fill up the brood and get a good ready for winter. If you have plenty of bees I think you will get fall pasture. If you do not, then I would feed them sugar to winter over. When you get more bees than you want, they ought to sell at a good profit. If nobody around you wants bees, advertise them next spring. With your bee-cellar I think you can winter them with little chance of loss, especially if they are rearing lots of brood from now on. Make your colonies all very strong when they go into winter, and you need not lose more than one or two in a hundred. If the bees get the brood-nest so full that there is really no room for storing honey, I would let them into the upper story or take out some combs of brood and swap them with some other hive for an empty comb. You can probably do this for quite a while without opening up the upper stories for room at this season of the year.—ED.]

THE DIFFERENCE BETWEEN COLONIES.

Mr. Root:—I have just been out among the bees and I find some stands that were given sections filled with foundation and baits early in the season, that have not put up one pound of honey. Adjoining them are other stands that have been worked for extracted honey, that have given me over 200 pounds this season. Now, I do not claim that these are average colonies; on the contrary they are the exception, but show that, while some bees will put up a large amount of surplus, others will produce nothing. My comb honey has come from the strongest swarms. The quantity produced is so small in comparison with what other swarms have given of extracted honey that there is no comparison in profits, hence I claim that with me 5 cts. for extracted honey is more profitable than 25 for comb, and there is all the difference between nothing with a colony of sluggards to 200 pounds and over with a strong colony of rustlers.

E. H. SCHAEFFLE.

Murphys, Cal, Aug. 20.

[This is in reply to the statement that Mr. Schaeffle had exaggerated the possible differences between two colonies.—ED.]

"THE EX LIGHTNING OPERATOR."

I am surprised to see such a statement in your columns, and am sure that you owe the "lightning operator" an apology at once, and especially so to show to your readers what doctors are, even if they do have government handles in front of the "Dr." Mr. Howe's health is now as good as ever, and has been since last October. He is now caring for about 1000 colonies of bees. In fact, he is still the same old lightning operator that he used to be, and I can tell you that he is a hummer for a little man just in his thirties. If you don't think so, come down and run with him some; and if you are not "lightning" you will wish you were somewhere else.

W. W. SOMERFORD.

Caimito, Cuba, Aug. 11.

[Mr. Somerford refers to a statement over the signature of Harry Howe, published a few weeks ago, to the effect that he was suffering from heart trouble, and was under the care of a U. S. Army Surgeon in the General Hospital. This item came to me through the general avenues of our office, and, not noticing the date, I supposed it was fresh news, and published it. But the fact was, the letter, evidently a "stray," was a year old, and now Mr. Howe writes that he is fully recovered, and says the "joke is on me." I have no apology to make beyond the foregoing statement, and, on the other hand, I wish to congratulate Mr. Howe on his speedy recovery and return to good health.—ED.]

GETTING COMBS BUILT DOWN TO BOTTOM-BAR ON HORIZONTAL WIRING.

Referring to Dr. Miller's Straw, page 625, and your comment, I wire horizontally, and have no difficulty in getting Hoffman frames,

either wired or unwired, built down to the bottom-bar, by using them in eight-frame hives as second stories. Although I have several queens more than three years old, and the hives imperfectly shaded, I have had no swarms for several years by tiering them 3½ stories high. When using 1½-story hives, bees would frequently swarm before occupying a super, although the hives were properly shaded.

J. C. DETWILER.

W. Washington, Pa., Aug. 6.



NATIONAL BEE-KEEPERS' ASSOCIATION.

OBJECT:—To promote and protect the interests of its members; to prevent the adulteration of honey.

OFFICERS:—E. R. Root, President, Medina, O.; R. C. Aikin, Vice-president, Loveland, Col.; Dr. A. B. Mason, Secretary, 3512 Monroe St., Sta. B, Toledo, O.; Eugene Secor, General Manager, Forest City, Iowa.

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FEES:—Annual membership fee, \$1.00. Remittances may be sent here or to General Manager as above.

QUITE a string of letters are coming in, inquiring about some of the localities I have visited; and it is evident that some, for financial reasons, and others for health, expect to move into localities which they hope will favor the pocketbook as well as the ailing body. It is almost impossible to give full or satisfactory information by letter; and if our friends will only wait I will try to cover the ground thoroughly, and at the same time give many illustrations. But no one should think of removing to some of these good localities without first finding whether they are already occupied. I think I can give that information along the line of my travels.

A MODIFIED PLAN OF RETURNING SWARMS TO THE PARENT STANDS.

OUR neighbor, Vernon Burt, has succeeded as usual in getting a good crop of honey. He returns all the swarms to the parent stand, giving the swarm a hive of empty combs, then putting the super from the old hive on top of the new one. If the weather is warm, he shakes or brushes *all* the bees off the combs of the parent hive, and then moves it to another location. Hatching brood will usually come out in time to take care of the young brood. In this way he gives the swarm all the strength it originally possessed; and by so doing he finds he gets the best working force possible. This plan is a combination of the return-swarm plan and of the Stachelhausen brush-swarm idea. But he says he is always careful to see there is hatching brood to make sure that the unsealed brood will not starve. He takes the further precaution of brushing only during hot weather. Of course, during the swarming season

there will be no robbing, and no fear need be entertained from that source.

The Root Co. bought Mr. Burt's entire crop of honey. It was in plain sections, 4×5.

SHALLOW FRAMES FOR COMB HONEY.

THE tendency among expert bee-keepers is toward a shallower frame than the standard Langstroth. Some others prefer the Langstroth because it has always given good results. But the other class consider that the frame given us by the father of American beekeeping is a little too deep. They desire a frame just shallow enough so that there will be no honey, or very little at least, stored in the brood-nest. Said Mr. Vernon Burt, "With my shallow frames I often have no more honey in them than the size of a silver dollar; and I estimate that, if my colonies had all been in the shallow hive, I should have secured 30 lbs. more per colony." This is a strong statement, but Mr. Burt says he is ready to verify it by showing the piles of honey that have come off the shallow frames and the amounts that have come off the deeper ones. While he does not claim the bees would store any more honey in one hive than in another, if we *include both the super and the brood nest*, yet he says that, instead of there being from 25 to 30 lbs. of honey left in the brood-nest, which he does not want there, that amount all goes into the supers where he does want it, and where he can command the very best market price obtainable. When I asked Mr. Burt if it was not desirable to have honey in the brood-nest, he said it was not, according to his practice. "I prefer," he said, "to sell my honey, what I do get, at 12 and 15 cts., and then buy syrup at 3 or 4 cts.; and I not only make a good trade, but I give the bees a much better feed. While good honey does very well most winters, yet there are occasional ones when the syrup-fed colonies come out much better. No, sir," said he, very emphatically, "I do not want any honey in the brood-nest in late summer. I prefer to feed sugar syrup, for then I *know* my bees have the very best food for winter."

PRICES ON CALIFORNIA HONEY.

THERE seems to be a combination of forces at work in Southern California, probably inspired by the buyers, to create the impression that there have been 500 or 600 carloads of honey produced in the southern counties. First it was 400, next 500 cars; and if this rate of exaggeration continues, it will be up to 1000. If there are 200 or 300 in sight the Root Co. would like to know where. When I went through the territory I visited some of the largest producers; and I also secured reports from them of other producers. A large portion of the crop had already been secured, and it was then known about how much each man would have. We have taken some little pains to make an investigation. Ventura County, one of the best if not *the* best, shows up so far, counting up the big producers, only about 245 tons. If we estimate 12 tons to the car, that would make only about 20 carloads

for Ventura; and at this rate we could scarcely scare up 140 carloads for *all* the southern counties. We already have men in the field who are looking this matter up, and we expect to get further reports.

As to Northern California, the best advices seem to indicate that the crop is going to be somewhat light; so, taking it all in all, prices for the whole State should advance rather than go down. I would advise the large producers, at least, to hold over unless they can sell at a figure that is somewhere within reason.

The bee-keepers of California have had three or four poor seasons in succession; and now when they do get a little honey it would be too bad for them to sell that little at a low figure, because, forsooth, there has, according to the buyers, been a "big crop." If there had been the *bees* in Southern California that there have been in times past, when the years were good, possibly the figures would reach 300 to 400 carloads; but the fact is, as I have stated in previous issues of this journal, the small producers became discouraged during the poor years, and either sold their bees or allowed them to die.

Perhaps the question may be raised right here, "What do you consider a reasonable figure for California white sage?" We of the Root Co. do not think it is wise for us to name any definite amount; for the large producers know what honey they have in sight, and know best about what they can afford to let it go for. All we can say to them is, "Do not let the buyers hoodwink you by big tales of 500 cars."

PRIORITY RIGHTS OF BEE-RANGES.

SOME years ago we used to hear a good deal about "priority rights" in bee ranges. For many years bee-keepers have been encroaching on each other's boundary; and as they continue to encroach, the individual yields per colony are cut down proportionately. The problem is being solved in many localities by the bee-keeper buying or leasing the bee-range. This is more feasible in the West, where one person or one stock company may own a square mile or several of them. The man who will pay the highest for the bee-range for a period of years is the man who will get the exclusive right for that range for his bees. I could name over a number of men who actually control by lease the bee-range for several square miles. Some pay as much as \$50 a mile per season; some get it for much less, depending on the value of the honey flora under consideration.

It is coming to pass, then, that the ranchers of the West are learning that in their vast acres, besides the growth they get from the soil direct, there is an indirect and new property right which they can sell at so much per square mile.

A few of the pioneer bee-keepers have been quick to appreciate the fact that they can lease the range and keep out others from dividing the profits; and I am glad to give a hint to many of our friends. Sometimes the rancher does not know there is much value in the way

of honey, and so he will sell a bee-range of a square mile for an insignificant sum. To have a man come and offer him \$25 for something he never considered of any value to him is somewhat of a surprise, and so much clean cash, and he will sign a contract instant, offering to sell the range, or lease it for a period of ten years at \$25 a year. Sometimes he will sell for much less than that. But the bee-keeper is fortunate if he can be the *first* man to make the application. If half a dozen fellows get to bidding on a range, there is no telling where the price will go. So take my advice, and bid first.

I have assumed all along that a rancher has a right to lease his range to a bee-man, just as he can lease or rent cow-pasture; and where such property right is acknowledged, and a purchase is made, the laws in our several States are bound to respect them.

But to buy a bee-range in the East would be quite another matter, as one might have to buy out fifty or a hundred farmers. One would have to buy the whole of them; for if *one* of them stood out this one might put just enough bees in his little spot that he would not sell, to cut the profits right in two. In the great West the conditions are quite different. If one man does not own half a square mile, there may be several that own that amount; and even if one paid each of them \$5 apiece, he would get just the range he desires.

A SUCCESSFUL PLAN OF HAVING QUEENS FERTILIZED IN AN UPPER STORY.

OUR Mr. Wardell, the man who has charge of our 700 colonies, has evolved a system of having queens fertilized in upper stories, that is a perfect success. I do not speak of it because it may be new, but because it gives excellent results. He tried it to some extent last year, and now, after having tested it most thoroughly the *whole season* with scarcely a failure, we are pleased to recommend it. By his plan he succeeds in getting three queens fertilized in one upper story at a time; that is to say, there may be three virgins, all of which will be fertilized within the usual time. The method is this:

He takes an ordinary Langstroth upper story, and divides it off lengthwise into three bee-tight compartments of equal size. On the under side of this story and a bee-space below the frames he tacks a sheet of wire cloth. The partitions comes in contact with wire cloth at the bottom, and the cover at the top, thus making each little room separate and bee-tight. On two sides and one end are entrances, one entrance communicating with each compartment.

This super, as constructed, is now put on over a strong colony, wire cloth down next to the bees. Into each of the compartments he puts two frames of bees, brood, and honey. He then inserts a queen-cell or lets run into each a virgin queen. The cover is put on, and the bees are left to their own devices. He now has practically three two frame nuclei, each one with a cell or virgin queen right over a strong colony, the only separation being the

wire cloth. And right here is the feature that makes it a success: The old methods have used perforated zinc, while Mr. Wardell uses wire cloth. Now for results:

These young queens fly out from the entrances from the upper story, come back and are fertilized. If cool weather comes, on it does not make any difference, because there is a large amount of heat from the cluster of bees below that rises up through the wire cloth.

The great feature in favor of this method is that, in the fall, or at the close of the season, when it is desired to unite the bees, and the young queens have all been sold from the upper story, all one has to do is to remove the wire cloth from the two stories, and let the bees run together. They all have the same scent, and there is no fighting.

This scheme has also another advantage. It economizes room in the yard, and brings the nuclei up to a nice height for the apiarist to work. We also make one colony do the work of three nuclei; and if honey is coming in, the colony can store just the same; but, of course, the frames of honey would have to be removed as fast as filled with honey. If one of the nuclei runs short of brood, all that is necessary is to remove the upper story for a minute or two, take out the empty comb from the nucleus, and substitute it for a frame of brood from the colony below. Set this, bees and all, into the nucleus, replace the upper story, and all will go on as before. There will be no fighting, because, understand, the bees are all of the same scent.

THE TRUTH ABOUT BEET AND CANE SUGAR,

SINCE printing the article by W. K. Morrison, page 672, I have received two communications—one from the youngest member of the firm, Huber H. Root, who is looking after our exhibit at the Pan-American. Under date of Sept. 2 he writes:

In reading over the article on beet sugar in Aug. 15th GLEANINGS I noticed some things I didn't believe; but thinking that perhaps I didn't know much about it I asked the beet-sugar man to give his opinion of it, and, if he wanted to, to write an article in reply, which he did. You may think that he, being interested in the beet-sugar industry, would not be able to give impartial statements; but Mr. Herisher and I both know him to be a man who would state the exact truth, and, at any rate, there would be no ax for him to grind, because bee-keepers as a rule do not know what the source of the sugar is which they buy. Ernest, in his footnote, says he was told that the canneries prefer cane-sugar to beet, because the cane has a higher sweetening power. Now, I have taken the trouble to question some men, grocers, etc., who have used both; and when they say that beet sugar is not as sweet, they also generally say that it also has an unpleasant odor. This lets out the fact that they have, because cheaper, bought that which was not as highly refined as it is when bought as granulated sugar. Unrefined beet sugar has a bad odor, because I smelled it myself. Refined has none. In places where the refined has been used, no one can tell the difference.

Mr. Gilmore is a chemist, as you see by his article, and he knows what he is talking about.

We may find two things that have the same chemical formula are different, such as the diamond and charcoal, but do we ever see two substances which have the same chemical formula and also the same physical characteristics which were not the same?

HUBER.

The letter referred to by Huber is one by Melvin R. Gilmore, who, it appears, is in position to know something about this whole question of sugar. He writes:

A STATEMENT FROM COMPETENT AUTHORITY.

Mr. Huber Root called my attention to an article published in GLEANINGS, August 15, and asked me to read it and give my opinion of some of its statements. The writer, W. K. Morrison, seems to think that sugar made from cane is better than that made from beets. I do not know how he or anyone can know when he gets granulated sugar whether it's made from cane or beet. Of course, if he sees the name of a sugar-factory of Nebraska, Colorado, or Michigan, on the sack in which it comes, he knows that he has beet sugar, but otherwise there is no way of knowing, for, even though it be from the refineries of Havemeyer or Arbuckle, it may be from either source, for these refineries handle raw beet sugar from Germany, Belgium, Holland, France, Austria, and Russia, as well as raw cane sugar from Java and the Indies.

One of the statements of the writer is that cane sugar is sweeter than beet sugar, "just as Jersey milk is richer than Holstein milk, and for this reason alone it commands a higher price." In the first place, I will say that cane sugar does not command a higher price than beet sugar; for in determining the price of sugar there is no question of its source but of its quality. In the next place, I will say that the sweetness of sugar, from whatever source, depends on its polarization of purity of sugar. As the chemical formula of sugar from both sources is the same ($C_{12}H_{22}O_{11}$), and their physical characteristics are both the same, it results that neither one nor the other can be said to be sweeter. The simile can not hold, for the reason that, while sugar is a fixed chemical compound of so many atoms of carbon, hydrogen, and oxygen, with certain physical characteristics resulting from the atoms of the molecule uniting in a certain way, milk, on the other hand, is a variable physical combination of many chemical compounds; and while the slightest variation in the component parts of the molecule of sugar would make it other than sugar, there can be a great variation in the composition of milk and it would still be milk. It might contain more or less water, more or less casein, more or less fat, etc., and yet it is milk.

The writer of the article claims that Dr. Wiley says that beet sugar is cane sugar and cane sugar is beet sugar. I do not think that Dr. Wiley could say that. He might say that they are identical, or that beet sugar is cane sugar, but not that cane sugar is beet sugar, for the reason that "cane sugar" is the common name of the article which is chemically known as "sucrose," just as "grape sugar" is the common name of the article chemically known as "glucose." The name "cane sugar" was given at a time when the only known source was cane; but since then it has been found in other grasses besides the cane, and in a number of roots, as the carrot, parsnip, turnip, and notably in the beet. The writer of the article further states that, by the "same process of reasoning, saccharin, which is 500 times sweeter than ordinary sugar, ought to be cane sugar also, but it is not." I should say it is not! Saccharin is not a sugar at all. Had none of the characteristics of sugar except that in a dilute form it gives a sensation of sweetness to the tongue, while in concentrated form it would be very bitter, and it is in no sense a food, as is sugar. I do not know what he means by "the same process of reasoning," but certainly no process of reasoning could class saccharin as sugar.

MELVIN R. GILMORE.

Supt. of Exhibit of the American Beet sugar Association at the Pan-American Exposition.

Buffalo, N. Y., Aug. 31.

I will reiterate what I have repeatedly said in these columns, that beet sugar, such as we have used for the last 20 years for feeding our bees, has been eminently satisfactory.

I will write to the parties who told me that the canners on the Pacific coast will use nothing but cane sugar, which they allege is sweeter, and ask for further information. Possibly those same canners are using beet sugar of a fine quality when they supposed they were using cane.



A few days ago a particular friend of mine handed me a tract, and said he wished I would read it and hand it back to him. I read it with much interest and attention. In fact, after reading it once I went back and read it all over again. Then I got to talking with my friends and acquaintances about it, and happened to mention it to Mr. Calvert, my son-in-law, and he exclaimed, laughing at the same time, "Why, Mr. Root, you do not even seem to know that you are contributing to the support of that very institution; that the man has been here, and that you have had a talk with him; and that you two got to be fast friends in just a little while; and now you don't seem to know any thing about it at all." Our stenographer suggests right here that this is a remarkable instance of doing good with the "left hand" and not letting the "right hand" know it. But there is no great credit due me; for in this busy life of mine, so full of first one thing and then another, I often find myself, when night comes, utterly forgetful of something I was greatly taken up with and full of enthusiasm in the morning. Now, here is the little tract that took such a hold on me. The letter from the young infidel is strikingly like quite a number that have come to me. In fact, I have given some of them in the pages of GLEANINGS. You will notice they seem to have a set of phrases that are passed around from one to the other. The infidel letter was written, as you will notice, over six years ago. We trust and hope the brother has accepted friend Johnson's offer, and come out of darkness into light. Let us now consider the tract:

A REPLY TO A YOUNG INFIDEL, OR HOW I BUILT AND HOW I RUN THE SCHOOL OF THE EVANGELISTS.

Esbridge, Kan., Jan. 2, 1895

Ashley S. Johnson:—I take pleasure to answer your letter that came to hand a few days ago. Can say this, that the books are all sold and the parties that have the books have never paid me, and, further, I went away directly after I let them have them and just got back on a few days' visit. Will return again in a few days. Now as to the payment of them, I will do so as soon as I can get the money to spare. When away I was sick for seven months, and that is the reason I have never written. I never received your letter until I came home. You seem to be of a different motive from some Christians. I have examined into all the phenomena of nature, and can clearly see by the things of nature by which I am surrounded and have found, that there is not the slightest evidence to prove the existence of God. Religion is a perfect fraud except to the extent of the morality that it teaches. It debas and has hindered all progress of thought and science. We can't go to religion and find any such thing as science. Religion never has produced one fact. I defy you to prove the things by which it is said God has done to be done in the length of time it was said to be done. Now write me, and I challenge you to take up my argument by letter or any other means. I should like to know by what method you were called, and where was that allwise Being, as you claimed, when he called for you? What is he putting in his time at now? Why doesn't God call the science men as well as the little bull-headed nigger and the dull and ignorant men? It seems that he calls them instead. So I close for this time. Hoping to receive a reply,

D. A. RAMSOUR.

In reply to the above, Mr. Johnson sent the following to his friend. We hope it will receive careful consideration.

Kimberlin Heights, Tenn., Jan. 7, 1895.

My dear Young Friend:—It grieves me beyond expression to read your letter; but as you so earnestly request it, I shall suggest some things in rebuttal of your ideas. In the first place, I think your claims just a little extravagant. You say: "I have examined into all the phenomena [no such word in the language] of nature." My son, "all" is a stupendous thing. Have you not overestimated your attainments somewhat? Sir Isaac Newton, who must have given fully as much thought to the physical worlds as you have, compared himself to a little child picking up here and there a pebble or a shell on the shore, while the great ocean of natural wonders stretched away before him! This must be my first answer to your letter. I now lay down a proposition which I have demonstrated in my own heart and before the world to be true: *God is; he is a living God; Jesus Christ is his Son and my Savior; the Bible is true, and our God hears and answers prayer.* Now to the proof. Did you ever read the Bible through? Did you ever count its promises? If not, let me assure you that it is claimed, and I doubt it not, that it contains twenty thousand promises to the man who leads a pure life and obeys his Maker in all things. How many of these promises have you personally put to the test? Half of them, one thousand of them, one hundred of them, ten of them, any of them? If not, you have no right to say that they are not true. I quote twenty-four of them. I insist that you can determine their truthfulness beyond doubt:

1. O taste and see that the Lord is good; blessed is the man that trusteth in him (Ps. 34:8).

2. Mark the perfect man, and behold the upright; for the end of man is peace (Ps. 37:37).

3. He healeth the broken in heart, and bindeth up their wounds (Ps. 147:3).

4. Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths (Prov. 3:5, 6).

5. There is that which scattereth, and yet increaseth; and there is that which withholdeth more than is meet, but it tendeth to poverty. The liberal soul shall be made fat; and he that withholdeth shall be watered also himself. He that withholdeth corn, the people shall curse him; but blessing shall be upon the head of him that selleth it. He that diligently seeketh good shall procure favor; but he that seeketh mischief, it shall come unto him. He that trusteth in riches shall fall; but the righteous shall flourish as a branch. He that troubleth his own house shall inherit the wind; and the fool shall be servant to the wise of heart. The fruit of the righteous is a tree of life; and he that winneth souls is wise. Behold, the righteous shall be recompensed in the earth; much more the wicked and the sinner (Prov. 11:24-31).

6. If ye be willing and obedient, ye shall eat the good of the land, but if ye refuse, and rebel, ye shall be devoured with the sword; for the mouth of the Lord hath spoken it (Isa. 1:19, 20).

7. Bring ye all the tithes into the storehouse, that there may be meat in mine house, and prove me now herewith, saith the Lord of hosts, if I will not open you the windows of heaven, and pour you out a blessing, that there shall not be room enough to receive it (Mal. 3:10).

8. Blessed are they which do hunger and thirst after righteousness; for they shall be filled (Matt. 5:6).

9. But thou, when thou prayest, enter into thy closet; and when thou hast shut thy door, pray to thy Father which is in secret; and thy Father which seeth in secret shall reward thee openly (Matt. 6:6).

10. But seek ye first the kingdom of God and his righteousness; and all these things shall be added unto you (Matt. 6:33).

11. Ask, and it shall be given you; seek, and ye shall find; knock, and it shall be opened unto you; for every one that asketh receiveth; and he that seeketh findeth; and to him that knocketh it shall be opened. Or what man is there of you, whom if his son ask bread, will he give him a stone? Or if he ask a fish, will he give him a serpent? If ye then, being evil, know how to give good gifts unto your children, how much more shall your Father which is in heaven give good things to them that ask him (Matt. 7:7-11)?

12. And all things whatsoever ye shall ask in prayer, believing, ye shall receive (Matt. 21:22).

13. Therefore I say unto you, What things soever ye

desire, when ye pray, believe that ye receive them, and ye shall receive them (Mark 11:24).

14. Jesus answered them, and said My doctrine is not mine, but his that sent me. If any man will do his will, he shall know of the doctrine whether it be of God, or whether I speak of myself (John 7:16, 17).

15. He that hath my commandments, and keepeth them, he it is that loveth me; and he that loveth me, shall be loved of my Father, and I will love him, and will manifest myself to him (John 14:21).

16. He that spared not his own Son, but delivered him up for us all, how shall he not with him also freely give us all things? (Rom. 8:32)?

17. For ye know the grace of our Lord Jesus Christ, that, though he was rich, yet for your sakes he became poor, that ye through his poverty might be rich (II. Cor 8:9).

18. He which sows sparingly shall reap also sparingly; and he which soweth bountifully shall reap also bountifully. Every man according as he purposeth in his heart, so let him give; not grudgingly, or of necessity; for God loveth a cheerful giver. And God is able to make all grace abound toward you; that ye, always having all sufficiency in all things, may abound to every good work. * * * being enriched in every thing to all bountifulness, which causeth through us thanksgiving to God (II. Cor. 9:6-11).

19. Hereby we do know that we know him, if we keep his commandments (I. John 2:3).

20. Beloved, if our hearts condemn us not, then have we confidence toward God; and whatsoever we ask, we receive of him, because we keep his commandments, and do those things that are pleasing in his sight (I. John 3:21, 22).

21. If any man serve me, let him follow me; and where I am, there shall also my servant be; if any man serve me, him will my Father honor (John 12:26).

22. Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give unto your bosom. For with the same measure that ye mete withal it shall be measured to you again (Luke 6:38).

23. But my God shall supply all your need according to his riches in glory by Jesus Christ (Phil. 4:19).

24. For God is not unrighteous to forget your work and labor of love, which ye have showed toward his name, in that ye have ministered to the saints and do minister (Heb. 6:10).

I have given you twenty-four promises, about one out of each thousand. I have tried them, and in the love of truth and the fear of God I solemnly declare that they are true, true in every particular. The way is open. You can put these things to the test. You challenge me, but the promises of God challenge you! But probably the fact that I say they are true is no evidence to you; but wait and see what I have to offer. You ask how I was called. It is hard to explain, but my life speaks for itself. About five years ago the conviction fastened itself upon me that I should do something to help the thousands of poor and struggling young men throughout the world who want to prepare themselves to preach the gospel. I had a comfortable home, but I had neither wealthy friends nor money. I wrote to a number of prominent brethren. I remember two of the replies. One came from one of the most influential men at the North, and was almost insulting. The other came from a preacher at the South, and was just as discouraging as he had the ability to make it; but I could not get rid of my conviction of duty. Along about this time an opportunity came to me to buy the farm on which I was reared, and I moved from the city to my place in the country. Time flew. In imagination I built colleges all over the farm. In the reality of the thing, however, I met most positive discouragements. My friends, instead of helping me, were disposed to discourage me. However, in the fall of 1892 a brother caught a little of my enthusiasm and voluntarily proposed to invest \$100 in the enterprise. This was a small amount compared with what I was resolved to do, but I launched out simply on such promises as the ones I have submitted to you, and ordered the plans and made a contract for the lumber. The enormity of the contract may be grasped when I tell you that I bought one hundred and seventeen thousand feet of rough lumber from one firm. I found no difficulty in making contracts for every thing needed; although, if the firms had asked me where the money was to come from I could not have told them if my life had been at stake, but I firmly believed it would come. We used in the neighborhood of, I think, sixty thousand brick, and nails beyond computation! I employed a foreman, and let me remind you that the third anniversary of moving the first load of lumber is not here. Things moved

very slowly. I asked my brethren to help me. Very little help came. I was learning to trust and pray. In the meantime the saw was flying through the logs, and we were hauling brick and digging out the foundation. Very little money came. I was also learning to wait. Now, while learning this lesson I was learning also to give. I reasoned a little, and came to this conclusion: If I can become unselfish in his work, God will raise up friends to help me. In 1882 I had written a book, and in 1885 another, and in 1892 still another. During all these years I had written for the press; and while my books were well received they had not startled any one. We grew. Mrs. Johnson was taking hold of the promises of God also. Finally, after much thought and discussion, we launched out further from the shore. Under date April 21, 1893, I find this record in our diary: "*Commenced to turn all funds into the College fund.*" I now consider this the greatest event in my Christian life. Necessity compelled us to increase our force. Frequently we had nearly twenty men employed, and we paid them from 60 cents to \$2.00 a day. I remember one Saturday night that having "paid off" I had less than 60 cents left! In the meantime, financial distress prevailed everywhere. The largest banks and railroads in the country were going down into hopeless ruin, but we kept the presses flying and the mail laden with books. I got a pasteboard box and put it in my drawer, and I record it with everlasting thanks to God and his people that, to my present recollection, while we have worn out a number of boxes, the box has never been empty, and not a single mail has arrived since April 21, 1893, that did not bring something for the work. I kept no account of what came in. When an order came in I filled it, put the money in the box and paid it out to the first man who presented a bill, and thus it has continued to this day. Since that beginning we have brought from the press seventy-seven thousand books, nearly three thousand a month. Contrast this with the few editions brought out from 1882 to 1892, and ask indefinitely to explain the difference. The work here surpasses only the work done by these books, for they are bringing thousands out of darkness into the clearer light of the gospel. With these facts before you, I invite you to take a walk through the building. The tower is eighty-five feet high, and the bell is one of the finest in the State, and to me is indeed a "liberty bell." Come in. We will stand here on the front piazza and look eastward. What a grand landscape! Before us is the beautiful French Broad River, and in the distance the grand old mountains. Walk into the library, and then into the chapel. It is a beautiful room finished in natural pine, seated with chairs; a beautiful chandelier hangs overhead. It will accommodate several hundred persons. Let us go into the dining-room. It is neatly furnished, and will seat exactly one hundred persons. Let us go upstairs and see the boys. Here they are, filling nearly all the (thirty-five rooms in the whole building) rooms. They represent about twenty-five States. I am feeding fully fifty of these boys just as I built the college, by trusting God and his people. Let us go outside. Here are our waterworks. The tank holds eight thousand gallons. If you will look toward the river you will see our new combination cannery, laundry, and pump house. This tank connects with the barn and garden. Let us proceed. This is Industrial Hall. Look at the corner stone: "*Emma E. Johnson Industrial Hall; and the poor have the gospel preached unto them.*" You will notice that it is nearly completed. What a splendid cellar! We hope to fill it with the products of the farm next fall. Look this building over. It will accommodate about sixty persons. Just as soon as it is done I intend to throw the doors open to poor young preachers everywhere, the only conditions of admission being poverty and piety. You see I am not afraid to trust my God and my brethren. Look at that nice cottage beyond the big oak. That is "India." It is for Brother and Sister Brown, who have spent several years in India, and after two years here they expect to return. I trust in the providence of God you may go with them as a missionary of the cross! Beyond this cottage we expect to build two others, "China" and "Japan." Let us go down to the barn. Yes, it is a big one, 48x78, two stories high. We have about forty head of milk cattle. You notice the connection for water. We expect to have every thing needful for man and beast. This is the Lord's work. You must see evidences of it, and he will supply all our needs. Are all these things paid for? Not altogether, but we are paying every week, and we have accounts and resources enough to pay every bill; and if these fall beyond them are the children of God, my brethren, and the everlasting

promise of my Lord and King. Here is a peculiar thing: Can you account for it? When I started this work I sent out a man to beg for it, and sent out letters and newspaper appeals. Every effort of this kind has failed miserably. However, after we practically put our all into it, money has begun to come from men and women who want to share the blessedness of developing these boys into useful men. Recently a banker drove out into the country and gave a brother \$50 for the work. I had never heard of him, and he is not identified with us so far as I know. Last mail I got a letter from a stranger enclosing \$5.00. I did not ask him for it, but he sent it. Who told him to do it? Now a word about these boys. You observed that most of them are big strong fellows from the farm. They are learning the Bible. They are learning English. They are learning unselfishness. They are learning the dignity and grandeur of labor. They are learning to trust and wait. They are learning that the Christian religion is spelled out in thorns and groans and sweat and unself-forgetfulness. I believe I could find sixty men in the building at this moment who would, if ready to graduate, go out into the benighted regions of the earth and preach to the poor, without a guaranteed salary from any one. Can you find sixty infidels who are willing to go out and deny themselves the endearments of home and the blessings of the Christian civilization they affect to despise, and proclaim the glories and blessedness of unbelief? You can not find one! "By their fruits ye shall know them." You can fling your doubts at the Bible; you can deny the divinity of Jesus of Nazareth; but there stands the School of the Evangelists, and in it young men from all parts of the country, who are learning the way of the Lord and catching the unselfish spirit of Jesus the Christ. I candidly confess that the whole thing seems as wonderful to me as it possibly can to you. I look back over the time since we began and say that right here on Kimberlin Heights, Tenn., are evidences that God is, and that he hears when we cry in faith. I realize that this is just the beginning. Just in proportion as I take hold on God, his people take hold of this work. Money comes in small sums. In this I rejoice. It means that the work is taking root in many hearts, and that from the rising to the going down of the sun, prayers are, like incense sweet, rising from many hearts that God will not allow us to be put to shame in the presence of those who do not believe. God has all things at his command, and I am his. I make my living out of the Correspondence Bible College, and stand pledged before God and men to put every dollar placed in our hands as the result of the sale of my books, or from any other source, dollar for dollar, into this work. Before my conversion I would not have done this. On the infidel hypothesis, how do you account for the fact that I do it now? Nor is this all. I sound it out far and near that I will not turn a poor young preacher away as long as we have room! I accept your challenge. Pledge yourself on honor not to mention your unbelief to any one; come here a year and see these things with your own eyes, and you may have access to all the classes, and your board will not cost you a cent. I have no time to dispute. "Come and see" (John 1:46).

Trusting that, through the rifted clouds of unbelief, you may soon "see Jesus," I am in warmest compassion,

Faithfully your friend,

ASHLEY S. JOHNSON.

After reading the above, even before I had spoken to Mr. Calvert, I wrote to Bro. Johnson, and asked him to let me know what had been done in his great work during the past six years. In reply he sent me quite a pile of literature, full of half-tone engravings of the young ministers he is educating, and of the grand buildings God has enabled him to build and pay for; and, dear reader, I wish you would write to Bro. A. S. Johnson, Kimberlin Heights, Tenn., for some of his free tracts and circulars. I tell you as he told the young infidel, "Come and see;" or perhaps, more literally, send to him for a report of the work, and see for yourself "what God has wrought." Those of you who have Muller's Life of Trust will recognize at once how similar it is in many respects to that great work.

"GUESSING-CONTESTS" AND SIMILAR GAMBLING ENTERPRISES.

We rejoice to see the following in that good home paper, the *Ohio Farmer*. Of course, we give it our hearty indorsement.

We are glad the Postmaster-General has spoken clearly in regard to the "guessing-contests" on the population of the United States and Canada, that have lately filled scores of columns of advertising and editorial space in many otherwise decent papers. It is a lottery business pure and simple, and as such should be excluded from the mails.

The scheme was urged upon *The Ohio Farmer*, and promptly rejected in the interests of common decency. It is not only a lottery—a game of chance—but a dishonest lottery. As nearly as can be computed from the data at hand, the guessing subscribers of any given periodical have only about one-tenth to one-twentieth as good a chance as they are led to believe they have—to win the \$15,000 or smaller prizes; for the prizes go not to the subscribers of that one paper, as they are tacitly led to suppose; but to them in common with those of some ten, twenty, or thirty other papers that are in the scheme. The claim that the subscribers pay nothing for their chance to guess is false, for the chance to guess is the sole objective premium or inducement offered, and often the sole subjective motive for subscribing. We are glad such contests are hereafter to be excluded from the mails—wholly, we hope, as lottery schemes, not partly as illegitimate second-class matter. We are glad, too, of the general reform promised; for if all the abuses that have crept into our postal system—including most of the free-mail matter—can be stopped, we may easily have penny postage on letters, and rural mail delivery.

MENTAL-SCIENCE HEALERS COME TO GRIEF.

We clip the following from the *Cleveland News and Herald*:

ARRESTED ON CHARGE OF USING THE MAILS FOR FRAUDULENT PURPOSES.

Daytona, Fla., August 24.—Helen Post, her husband, Colonel C. C. Post, and her son-in-law, C. F. Burgman, were arrested to day on information sworn to by Post-office Inspector Fred D. Peer, charging them with using the mails for fraudulent purposes. The three were taken to Jacksonville, where they will have a hearing before United States Commissioner William Archibald.

The offense alleged consisted in sending through the mails circulars professing to cure patients at a distance by means of mental science. Mrs. Post claimed to be able to heal all kinds of diseases, even restoring the blind, holding that no disease was incurable by her method of treatment.

I felt like shouting, "May the Lord be praised that the U. S. Postal Department comes out fairly and squarely, and declares these things frauds." The most distressing part of the affair is that so many people, and people apparently gifted with plain common sense, will insist that the government is wrong, and that these mental healers are a blessing to humanity. Our stenographer suggests that these mental healers do doubtless cure some kinds of "blindness." In fact, it is to be hoped they do.

STREET FAIRS, ETC.

I am glad to see the following in the *Am. Agriculturist*. I have wondered that sensible people had tolerated such an outrage as long as they have.

The street fair has about had its day. Some towns, however, do not seem to fully understand the pernicious effect of this latter-day nuisance, and quite a number are scheduled for this summer and fall. That no good will come from any of them is a foregone conclusion, as any one knows who has had experience with them.

"\$720 A YEAR, AND ALL EXPENSES PAID."

The above is what a Chicago book firm advertised. One of the readers of GLEANINGS, Mr. W. E. Birch, of Afton, Va., wrote them, and after some correspondence sent them \$10 for the outfit to go to work. After they had got his money they informed him that his salary was to be taken from what he received from other people whom he might be able to set to work; that is, his sub-agents were to pay him some money to bind the bargain, just as he paid the book firm some money, and from this money he was to get his salary. When he objected to this latter explanation, returned the cheap outfit, and wanted his money back, they refused, and called his attention to the printed agreement he had signed. I do not see how he can help himself; neither do I see how anybody should be persuaded that advertisers will do as they agree, when they promise to pay Tom, Dick, and Harry all over the country \$720 a year and all expenses. Notwithstanding, lots of people are losing \$10 or some similar sum by going into just such swindles. Nobody will hire you and pay you wages until he sees what you are able to do and how you do it.



GINSENG AND ITS CULTIVATION.

While it is true our own plants did start bright and brisk in the spring, they have so far made only a very small growth. Some of them grew perhaps a few small berries; but with the richest soil we could give the plants, with proper attention, shading, etc., it is certainly the slowest thing I have ever grown in the whole vegetable kingdom. Are any of our experiment stations growing ginseng? We very much need reports from somebody in regard to the business, who does not have plants and seeds for sale. No doubt the business will pay at the present prices of roots and seeds.

ALFALFA—SOWING IT IN THE FALL.

Mr. Root:—I have never read in your writings of your attempting to raise alfalfa on your own grounds. If you have tried it and failed, try my plan. I believe you can grow it as well as we of the West. Try sowing in this fall between the 20th of this month and the 15th of September. You can not put too much work on your ground. Give it a good plow job; harrow and roll until you get tired, firming the seed-bed down fine and smooth before sowing. Sow about 20 lbs. to the acre, with a seeder or drill, or broadcast with an even distribution; then harrow lightly; and if there is moisture, in a few days the clover will be up; and by cold weather you will find some of the roots have gone down 12 to 18 inches, and you will have a stand for all time. I will harvest four crops from mine this season, without irrigation, and get a honey crop too, right through the most terrible drouth and heat I ever saw in my 38 years' residence in Kansas. The truth has never been fully told of the benefits of alfalfa. It is king of all forage-plants, as well as a substitute for grain. All kinds of stock except hogs will fatten on the hay in shape for market, and hogs will keep in good order on the hay, without grain. I have been trying for 15 years to grow alfalfa by sowing it in the

spring. I could get a stand, but by fall it was all gone—killed out by crab-grass and hot suns during the summer.

About three years ago I sowed 7 acres, as an experiment, the latter part of August, and got a fine stand; and now we sow in the fall; and so far, when put in right, there are no failures; and, take it one year with another in this locality, land in alfalfa will pay interest on land, even if valued at \$200 per acre. If you have never tried fall sowing in Medina, do so, and I believe your experiments will benefit others. The great value of this plant is known best only to those who raise it; and I believe it can be grown nearly all over the United States. Possibly it would winter-kill in some of the more northern States.

Rossville, Kan., Aug. 6.

M. F. TATMAN.

Thanks for your suggestion, friend T.; and my opinion is that all kinds of clovers will succeed if the work is done thoroughly, and put in in the fall in the way you describe. The failures with fall sowing of almost any kind of clover are because the work has been done in a slipshod sort of way. Perhaps heavy clay ground will first need underdraining before we can make a success of it. If the ground is poor, and has not had manure for many years, very likely it will need some sort of fertilizer to get the alfalfa started. The fact that we have succeeded in growing crimson clover year after year, without any failure, for half a dozen years, put in almost exactly as you describe, goes far to convince me that many of our old and successful farmers have something yet to learn in regard to putting in clovers in August and the fore part of September. We have made a success with alfalfa on our grounds in small plots.

SWEET CLOVER THAT HORSES AND CATTLE WILL NOT EAT.

I have had an experiment with sweet clover, and find that no stock will eat it, not as hay and not as green pasture. It is just as thick as it can stand on the road here in some places, and cows and horses turned out on it would starve to death before they would eat it. I have seen it tried myself. It is good bee pasture, and that is all it is good for.

C. H. ZURBURG.

My good friend, you have made a mistake somewhere, but I do not know exactly where it is; but the plant is not sweet clover, or it is a different kind of sweet clover from that growing along the roadsides here, or else your horses and cattle have not been taught to eat it. Our horses learn the trick by grabbing at green stuff when they are cultivating or doing other work around the farm. A horse that catches on to this trick will, as you know, bite at any thing with green leaves on it; and in this way our horses learned to prefer sweet clover to any other plant. We have at different times owned a dozen horses, and they all learned to eat sweet clover in this way. Cows usually learn how when there is a severe drouth and the pasture is very short so they can not get any thing else. At such time, if they are where they can get a bite of sweet clover when it is young and tender, they very soon catch on. I never saw it fail, and I can not think the cows and horses in your locality are any different from those here. Of course, the plant may be somewhat different in different soils; but when you say they would starve to death before they would eat sweet clover, you are certainly making a mistake. Let us have a lot of reports in regard to this matter.

Has anybody else had an experience like that of friend Z.?

THE EUROPEAN LINDEN AND ITS LATER BLOOMING.

The following is of exceeding importance to bee-keepers. See if you do not agree with me. I extract it from a recent number of the *Farm and Fireside*, and it is from our friend T. Greiner, La Salle, N. Y.:

Within a few rods from the house I have a European linden, planted in 1889. It was full of bloom again this year, and, as last year its blooming season was fully a week later than that of the American linden, or basswood. My bees worked on this tree in full force long after bees had ceased to work on any of the native basswoods. Now I should like to know whether this late-blooming habit is common with all the European lindens or whether it is that of an individual tree. It seems to me of importance to the interests of our bee-keeping friends to see clear on this point, and then, if it be found that the basswood-honey season might thus be prolonged for a week, to plant lindens with the native basswood just for that purpose. Have any of our friends had experience with the European linden? Who will enlighten us?

When we planted our basswood orchard I think I had a dozen or more European lindens; but the matter has been out of mind, I am ashamed to say, so that I can not really state at the present time in regard to later blooming; but I remember this was reported to be the case when the orchard was planted. If this thing is true, then somebody wants to go to work immediately to grow European lindens for us, not by the hundred or thousand, but by the *million*. If my enthusiasm does not abate I will try to start the thing going at once. By the way, if this reaches the eye of any nurseryman who can tell us where to find such trees by the thousand, I wish he would write me at once.

JAMAICA SORREL.

I am always delighted to hear any thing Jamaican well spoken of, and am not less so at the editor's good opinion of Jamaica sorrel, page 484. In Jamaica the sauce that he speaks of has not, so far as I know, been made—at least not to any extent; but at Christmastide there is hardly a home, high or low, but has a plentiful supply of the delicious beverage known as "Jamaica drink." Few drinks there are, made from fruit, that can surpass this sorrel drink—so cool and delicate, and of a rich ruby color, like the plant itself when seeding, and it is considered to be to some extent a blood-purifier. It is made from the "fleshy husk," same as used for sauce. This husk is packed in a vessel, and a sufficient amount of boiling water (about four pails to one) poured on. Adding a few pieces of ginger it is allowed to steep for a day or two, is then strained off and bottled, to keep it from fermenting; and after it has settled it is fit for use when five or six days old. Sugar must be added to taste, but only to that quantity that can be used in one or two days, as it will not keep any longer when sweetened.

The sorrel is an annual, and seeds in December. It is certainly a grand sight to see even a small garden of it at that time.

I shall endeavor to send you some seeds, Mr. Editor, next season, if all goes well, just to try it along with those from Florida as I feel quite sure that Jamaica is the home of the Jamaica sorrel.

Black River, Jamaica.

ERIC FORREST.

We have at present about 40 plants growing with great vigor. Some of them are nearly a foot high; and therefore I feel quite confident we can get "fruit" in our locality if started under glass just as we start tomato-plants.

THAT PUGNACIOUS PLYMOUTH ROCK ROOSTER.

He is dead. He kept getting more and more quarrelsome. He pitched into Mr. Wardell when the latter was at work with the bees in the apiary, and he commenced driving people off the sidewalk. One day he went over into a neighbor's yard, taking his hens along with him. The neighbor's wife undertook to drive the strange poultry back to their own home where they belonged; but instead of being driven away he drove the good woman off *her own premises*. Not long after, he was found in the road dead. I conjectured he might have tackled a buggy-wheel with his undaunted courage. It made me think of Don Quixote fighting the windmill. Well, he is gone, but he left 32 strong healthy chickens. Every one that hatched lived to grow up. About half of the 32 are roosters. One of them that we are to have for dinner to-morrow weighs 5¼ lbs. He was hatched about the first of May, so he is now just about four months old. My impression is that his disposition showed vigor and vitality; and the way the chickens went through the wet month of June, out in the rain, and a cold rain at that a good part of the time, I am inclined to think pugnacity does, at least to some extent, indicate vigor and endurance. Most of his progeny are a cross between the White and the Barred Plymouth. You see I am not working for pure blood. I want vigor and strength without regard to color.

Since the above was written, I notice the Hope Farm man, in the *Rural New-Yorker*, is getting on to the same track that I am on. I have wondered several times whether he was reading GLEANINGS. In a recent number he told us of paying \$10 for a lot of choice eggs to put in his incubator. He had a very small hatch indeed, and what few chickens did hatch had so little vitality that they kept dying off until he had almost nothing left of his \$10. Then in disgust he tries the incubator again, with some eggs from his own poultry yard, and here is his report:

Out of 172 fertile eggs, 154 hatched, and only four have been lost in the same brooder which witnessed the former wholesale slaughter. You never saw a livelier lot of chickens. There is a sore place on my leg which indicates to me the chief reason for this lively crowd. It is where Don the Wyandotte rooster, spurred me when I went to look at the egg record of his family. The sons and daughters of a nine pound bird that is willing to tackle a 175-pound man will not fall down and die without a struggle at least. The fighting blood in that old chap does those chicks more good than the lamp under the brooder! What a great privilege it is to have fight and kick in one's pedigree, so that they may be turned to worthy ends!

Heigh-ho! Since the above was put in type one of the pullets from the fighting rooster has laid several eggs—the first one, a day or two before she was four months old. So we have precocity in weight and precocity in egg-laying from the tiger rooster. No doubt part of this, at least, is accidental; but I think we are safe in saying it pays to save a vigorous, intrepid, and courageous male.

BEET AND CANE SUGAR.

The editorial on page 757, in regard to sugars, is very gratifying to me for two reasons. 1. It contains the first communication from our youngest boy, Huber, that has ever appeared in print, so far as I recollect; 2. It indorses exactly what I have been trying to tell the friends for years; namely, that the quality of sugar depends on its purity and not at all on whether it was made from beets, sugar cane, or something else. I have for some time back protested against space being given in GLEANINGS to argue the matter; and we can certainly now, it seems to me, drop it without wasting any more time or occupying space with an idle discussion. Mr. Gilmore is unquestionably right.

We find the following on a scrap of newspaper:

The anti cigarette law in Minnesota has been held to be constitutional. This is one of the most stringent statutes yet enacted to prevent the sale of tobacco in that form.

A reader of GLEANINGS who has tried Quirin's strain of bees says they are very energetic. They are out first in the morning and last at night; in fact they work so late evenings that he has baptized them "Quirin's Night Hawks." H. G. Quirin's ad. appears on the last page of cover.

EGG FOOD! The kind that tones and keeps up the hen so that she simply must lay. **LEY'S POULTRY CONDITION POWDER** puts good red blood into poultry veins; kills all disease germs; tones and nourishes fowls—big and little get all there is in the food when fed in conjunction with it. Price 25c pkg.; 5 for \$1. Ley's Thoroughbred Minorca eggs, \$1 for 13. Thoroughbred Belgian Hares, **Geo. J. Ley, Florence, California.**

GINSENG!

For reasons not needful to exp ain here we have got to move one of our largest ginseng gardens, and will close this garden out at very low rates. Seedling plants, 3c each; yearling plants, 4c; 2-year old plants, 5c; 3-year-old plants, 6c; 4-year old plants that have not borne seed, 8c; strong seed bearing plants, 1/2 to 1/2 in. in diam., 12c; over 1/2 in. in diam., 15c.

Edgewater Seed Co., Skaneateles, N. Y.

1200 FERRETS. All sizes; some trained; first-class stock. New price list free. **N. A. Knapp, Rochester, Lorain Co., Ohio.**



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Page Woven Wire Fence Co., Box 5, Adrian, Mich.

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For pamphlets of Michigan farm lands and the fruit belt, address **W. C. Tousey, D. P. A. Toledo, Ohio.**



A Superior Red-clover Queen for 25 cts.

An Offer for New Subscribers:

We want to add a lot of new readers to our **WEEKLY AMERICAN BEE JOURNAL** list during August and September. For that reason we are making those who are not now reading our journal regularly, this liberal offer: Send us \$1.25, and we will mail you the **Bee Journal** for a whole year, and also one of our **SUPERIOR LONG-TONGUED RED-CLOVER QUEENS**—untested Italian.

We arranged with one of the oldest and best queen-breeders (having many years' experience) to rear queens for us this season. His bees average quite a good deal the longest tongues of any yet measured. The breeder he will use is direct from Italy, having imported her himself. Her worker-bees are large, somewhat leather-colored, very gentle, and scarcely requiring veil or smoke. They scored red clover honey last season. All queens guaranteed to arrive in good condition, and all will be clipped unless otherwise ordered. All queens mailed promptly.

Headquarters in Chicago for Root's bee-supplies at Root's prices. A free catalog and sample of the **American Bee Journal** on request.



George W. York & Co., Chicago, Ill.
 144, 146 Erie Street.

Standard-Bred Queens!

Acme of Perfection; Not a Hybrid among Them.

Improved Strain Golden Italians.

World-wide reputation; 75c each; six for \$4.00.

Long-tongued 3-banded Italians.

Bred from stock whose tongues measured 25-hundredths inch. These are the red clover hustlers of America. 75 cts. each; six for \$4.00. Safe arrival guaranteed. Catalog on application. Headquarters for bee-keepers' supplies.

Fred W. Muth & Co., Cincinnati, Ohio.
 South-west Corner Front and Walnut Streets.

ALBINO QUEENS. If you want the most prolific queens, the best honey-gatherers, the best comb-builders, the hardiest and gentlest bees known, try my albinos. My untested queens, 75c. **J. D. GIVENS, Lisbon, Texas.**



BELGIAN HARES!

With every hare sold goes a full pedigree, register number, and score-card, scored by an official judge. Does will be bred to one of our famous high-scoring bucks free. Write for book. Mgr. of The A. I. Root Co. **J. B. MASON, MECHANIC FALLS, MAINE.**



Belgian Hares

I have some fine hares for sale at reasonable prices.

J. F. Moore, : Tiffin, Ohio.



HONEY-PACKAGES.

We still have on hand a good supply of 1 and 2 quart Mason jars, No. 25, and No. 100 jars and tumblers. We are short on $\frac{1}{2}$ and 1 lb. square jars, but expect a new supply within a few days. We can also furnish tin cans and pails as listed. We published a list of stock on hand of the various kinds a month ago. We still have some of most of the items in that list, although the quantities have been reduced somewhat.

COMB HONEY WANTED.

We are unable to secure choice comb honey fast enough to fill our orders. Buyers have been over the ground in the West, picking up most of the desirable lots. There are a good many bee-keepers who have not prepared their honey for market, perhaps, for lack of time. If any such read this item I would advise them to lose no time in getting their honey ready. When there is a good demand at good prices, let it go. The demand and price usually slack in December, and sometimes before. We solicit offers of fancy and No. 1 white. If you have any to sell, write us how much and what you ask for it.

QUEENS UNTIL NOV. 15TH.

The best of warranted Italian queens, 50 cts each, \$6.00 per dozen. We breed bees for business, and guarantee prolific queens, and fine honey-gatherers. Your orders will be promptly filled by return mail.
J. W. K. SHAW & CO., Loreauville, La.

WANTED.—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—To buy your honey. State your lowest cash price, kind, and quantity.
EDW. WILKINSON, Wilton, Wis.

WANTED.—To buy quantity lots of fancy and No. 1 white-clover comb honey in no-drip cases.
BYRON WALKER, Clyde, Cook Co., Ill.

WANTED.—We are in the market for honey, either local or carlots commission or purchase. We especially desire Wisconsin basswood, and will be pleased to hear from that State.
EVANS & TURNER,
Town St., Cor. 4th, Columbus, Ohio.

WANTED.—Fancy and No. 1 white-clover honey, one-pound sections, paper cartons preferred.
BLAKE, SCOTT & LEE,
33 Commercial St., Boston, Mass.

WANTED.—Comb or extracted honey in any quantity. Cash paid. State kind, quantity, how packed, and lowest price.
EARL C. WALKER,
Box 316, New Albany, Indiana.

FOR SALE.—Sixteen 60-lb. cans of white-clover extracted honey at 7 cts. a pound. W. D. SOPER,
Rural Delivery No. 3, Jackson, Mich.

FOR SALE.—Extracted honey in 60 lb. cans at $7\frac{1}{2}$ cts.
M. ISBELL, Norwich, N. Y.

FOR SALE.—Extracted honey in 60-lb. cans, No. 1 alfalfa, $7\frac{1}{2}$ cts per lb.; partly from other bloom, $6\frac{1}{2}$ cts.
D. S. JENKINS, Las Animas, Colo.

FOR SALE.—8000 lbs. clover and basswood honey, mixed, in 60-lb. cans, as white as Michigan produces; good body and flavor; the best I ever produced in 26 years' bee-keeping. A free sample will convince you. Eight cts. per lb. at Carson City.
E. D. TOWNSEND, Remus, Mich.

We will be in the market for honey the coming season in carloads and less than carloads, and would be glad to hear from producers everywhere who they will have to offer.
SRAVEY & FLARSHHEIM,
1818-1824 Union Avenue, Kansas City, Mo.

PINEAPPLES!

Choice fruit and plants now ready for shipment. Suitable land for sale, sheds constructed, pineries set and cared for. Correspondence solicited.

Lewisiana Pinery Company, Orlando, Florida.
C. H. Lewis, Manager.

100 Tested Red Clover Queens For Sale

at 75 cents each: $\frac{1}{2}$ dozen, \$4.00; untested, 60 cts.; $\frac{1}{2}$ dozen, \$3.00
LEININGER BROS.,
Fort Jennings, Ohio.

CHAS. ISRAEL & BROS.,
486-490 Canal St., Corner Watt St., N. Y.

Honey and Beeswax.

Liberal Advances made on Consignments. Wholesale Dealers and Commission Merchants. Estab. 1875.

Wanted! HONEY, WAX,
MAPLE SUGAR,
SYRUP, AND
POPCORN.

A. L. JENKS, 42 W. Market St., Buffalo, N. Y.

100 Full Swarms
Bees at \$1.25
a Swarm.

With good laying queen in shipping-box, no hive or combs: hive extra, \$1.00. These bees are for feeding up for winter to make colonies, or to strengthen weak colonies, or may be used for re-queening. Full directions given. Orders filled as received. Write for further information regarding these bees. Address
F. H. McFarland, Hyde Park, Vermont.

Young mismated Italian queens for 25 cts. each.
C. G. FENN, Washington, Conn.

Wants and Exchange.

WANTED.—An experienced bee-man to manage apiary and run a one horse farm. Fine location, large orchard, good school. Address
CLAUDE SHEWMMAKE, Shewmake, Laurens Co., Ga.

WANTED.—Position in Cuba, by experienced bee-keeper; young man; sober.
A. C. FAULKNER, Basking Ridge, N. J.

WANTED.—To sell or exchange gasoline engine, motor bicycle, bicycles of every description, for launch, lathe, drill-press, etc.
ROBERT B. GEDYE, LaSalle, Ill.

WANTED.—To exchange 200-egg incubator and brooder, with copper tanks complete, for bees in 8-frame Dovetailed hives.
J. E. HIPPLE, Bird Island, Minn.

WANTED.—To exchange second-hand 60-lb. cans, practically as good as new, at 20c per can in lots of 20 or more. f. o. b. Chicago, for white-clover honey at market price.
B. WALKER, Clyde, Cook Co., Ill.

WANTED.—To exchange one broom-handle lathe and one automatic gauge lathe.
W. S. AMMON, 216-8 Court St., Reading, Pa.

WANTED.—To exchange a St. Albans 2 h.-p. and thrasher for 3 h.-p. gasoline engine.
C. L. GOULD, East Dover, Vermont.